JUNE 10, 1933

Railway Age

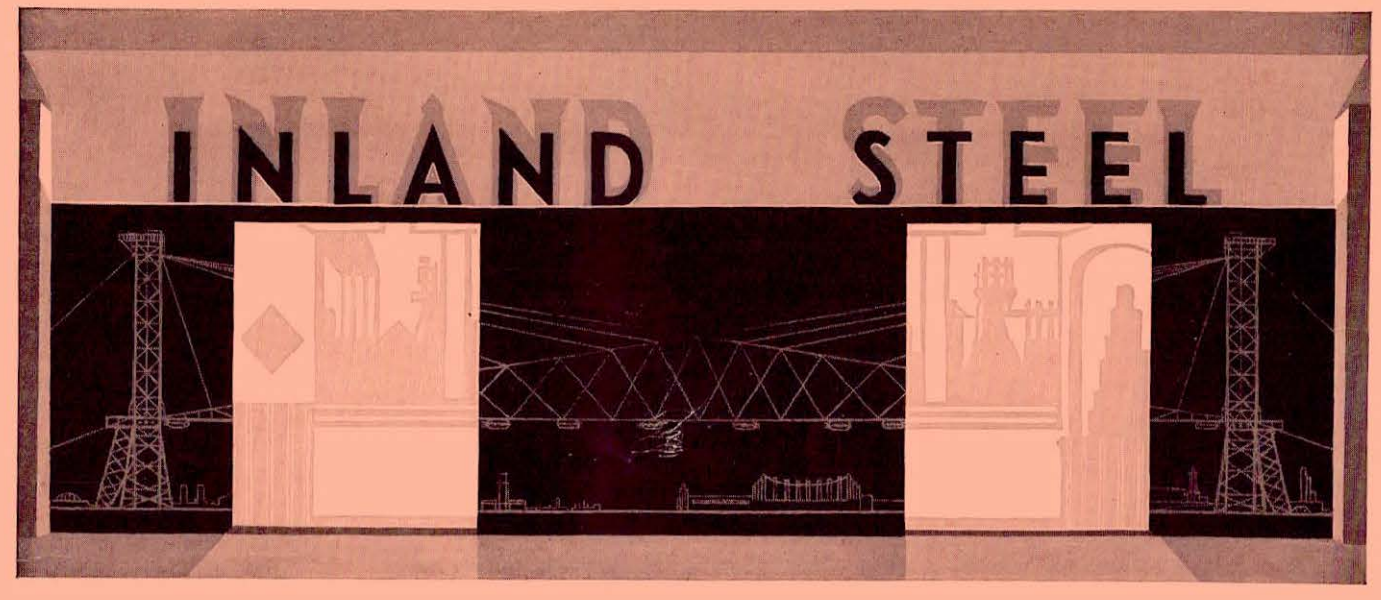
Founded In 1856

LIBRARY,
BEAVER FALLS, PA.

Replacing Equipment Which Is Obsolete and Expensive to Maintain

PATRICK JOYCE, president of the Chicago Great Western, said, in commenting upon the order his road recently placed for 500 steel box cars, "the cars will replace equipment which is obsolete and expensive to maintain. We feel business has taken a definite turn for the better and we want to be prepared to handle our traffic in modern equipment and without excessive cost."

The order for the 500 cars is extremely significant at this time. President Joyce's statement is even more so.



Inland's Demonstration of Steel at "A Century of Progress" Exposition

TO demonstrate that beauty and utility can be combined by using steel . . . to exhibit Inland products . . . to visualize the processes of making steel—these three aims are achieved by the Inland Exhibit at "A Century of Progress."

The exhibit is of steel—in execution as well as in purpose—of raw steel, no paint. The furniture is especially designed to demonstrate the beauty possible with steel. The ceiling and other portions of the exhibit show the utility of steel—visualize the rewards of tradition-breaking design.

The floor is a demonstration of how appearance and safety can at last be combined at economical cost by the use of Inland 4-Way Floor Plates. Views of steel making processes are carved on the steel sheets used for the walls. Colored spotlights bring out the fiery beauty of steel in the making. Another portion of the exhibit shows the progressive steps in the development of the railroad rail. And a moving picture portrays Inland's great Continuous Strip Mill.

In short, the Inland Exhibit visualizes A Century of Progress in the development and application of steel. You are cordially invited to visit this exhibit which is in Booths 8 and 9, Group D, Unit No. 2, First Floor, General Exhibits Building. INLAND STEEL COMPANY, 38 South Dearborn Street, Chicago, Illinois.

INLAND STEEL

ABLE SERVANT OF THE CENTRAL WEST

Sheets Strip Plates
Bands Structurals Piling

Rails Track Accessories
Bars Rivets Billets

Published weekly by Simmons-Boardman Publishing Company, 1309 Noble Street, Philadelphia, Pa. Entered as second class matter, January 4, 1933, at the Post Office at Philadelphia, Pa., under the act of March 3, 1879.

PREVENT SLIDES

Quickly and Economically

with

ARMCO *Perforated* PIPE

This slide on a main-line railroad in Eastern Illinois was recently cured with an Armco Subdrainage System.

PREVENTING this costly menace to roadbed and traffic is one of the several difficult subdrainage jobs entrusted to Armco Perforated Pipe on many railroads.

Water, which is almost always the underlying cause of slides, is intercepted and carried off by Armco Perforated Pipe before it makes the area unstable. The perforations are large enough to admit all water freely, yet small enough to exclude soil particles. Additional advantages are: *Adequate strength* against crushing or pulling apart in unstable or shifting soils, as provided by the corrugated metal type. *Proved durability* as assured by Armco Ingot Iron, Nature-tested 27 years to date. *Ease* and *low cost of handling* and *installation.*

Armco Perforated Pipe also is used to tap water pockets, to eliminate soft spots and heaving, to quickly remove surplus water around track pans, and to provide better subdrainage wherever it is needed.

Facts on the performance of Armco Perforated Pipe in slide areas and in other types of service are yours for the asking. Address the office nearest you.

Armco Culverts and drains are made from a product of The American Rolling Mill Company and always bear its brand.

INGOT IRON RAILWAY PRODUCTS CO.

Middletown, Ohio **Berkeley, Calif.**

Philadelphia St. Louis Salt Lake City
Los Angeles Minneapolis Houston Portland
Atlanta Denver Chicago Dallas
El Paso Spokane

(Member of the Armco Culvert Mfrs. Assn.)

Gentlemen: Send me at once facts and data on Armco Perforated Pipe

Name.....

Title.....

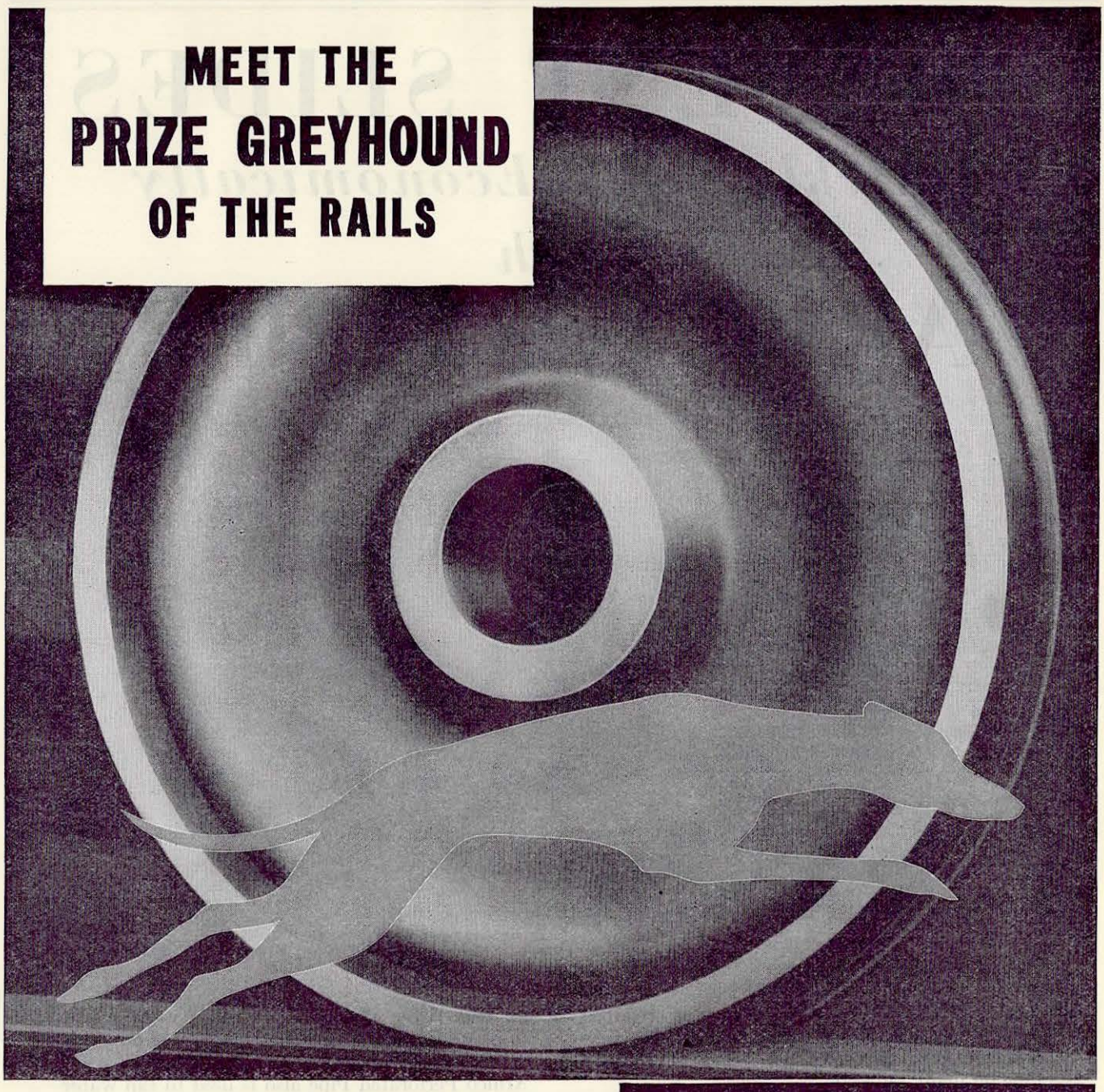
Road.....

Address.....

City.....

R. A. 6-10

MEET THE PRIZE GREYHOUND OF THE RAILS



ARMCO
WHEELS • SHEETS • PLATES
for *thrifty* railroads

MAYBE you've observed it. Some greyhounds are just naturally fleeter than others. And some wheels consistently outwear other wheels. Armco ONE-WEAR wheels are in the plus-mileage class. You can bet on them and never run the risk of getting less than your full money's worth. Armco ONE-WEARS talk profits wherever they roll—in the only language you want to understand: *plus mileage*. It takes stamina to do that, the sort of stamina measured by proved design, sound steel, and the same degree of hardness below as above the condemning limit. Keep your light rolling stock moving long and profitably with Armco ONE-WEAR wheels. An experienced representative from our nearest office will gladly talk it over with you. Call him in before you again order wheels.

THE ARMCO RAILROAD SALES CO. *Executive Offices:* Middletown, Ohio

Subsidiary of The American Rolling Mill Company

DISTRICT OFFICES: Chicago . Cleveland . New York . Philadelphia . St. Louis . San Francisco

Published every Saturday by the Simmons-Boardman Publishing Company, 1309 Noble Street, Philadelphia, Pa., with executive offices at 30 Church Street, New York

SAMUEL O. DUNN, *Chairman of Board*
HENRY LEE, *President*
LUCIUS B. SHERMAN, *Vice-Pres.*
CECIL R. MILLS, *Vice-Pres.*
ROY V. WRIGHT, *Vice-Pres. and Sec.*
FREDERICK H. THOMPSON, *Vice-Pres.*
GEORGE SLATE, *Vice-Pres.*
ELMER T. HOWSON, *Vice-Pres.*
F. C. KOCH, *Vice-Pres.*
JOHN T. DEMOTT, *Treas.*

CHICAGO
105 West Adams St.

WASHINGTON
17th and H Streets, N. W.

CLEVELAND
Terminal Tower

SAN FRANCISCO
58 Main St.

Editorial Staff
SAMUEL O. DUNN, *Editor*
ROY V. WRIGHT, *Managing Editor*
ELMER T. HOWSON, *Western Editor*
H. F. LANE, *Washington Editor*

B. B. ADAMS
C. B. PECK
W. S. LACHER
ALFRED G. OEHLER
F. W. KRAEGER
E. L. WOODWARD
J. G. LYNE
J. H. DUNN
D. A. STEEL
R. A. DOSTER
JOHN C. EMERY
H. C. WILCOX
NEAL D. HOWARD
CHARLES LAYNG
GEORGE E. BOYD
WALTER J. TAFT
M. H. DICK
S. R. HAMILTON

The Railway Age is a member of the Associated Business Papers (A. B. P.) and of the Audit Bureau of Circulations (A. B. C.).

Subscriptions, including 52 regular weekly issues, payable in advance and postage free; United States and possessions, 1 year $6.00, 2 years $10.00; Canada, including duty, 1 year $8.00, 2 years $14.00; foreign countries, 1 year $8.00, 2 years $14.00.

Single copies, 25 cents each.

Railway Age

With which are incorporated the Railway Review, the Railroad Gazette and the Railway Age-Gazette. Name registered U. S. Patent Office.

Vol. 94 June 10, 1933 No. 23

In This Issue

Traffic Recovery, The Railways' Greatest Problem . . . . . Page 820

The first of a series of 20 articles on a subject of primary importance to the railways—how to recover passenger and freight traffic which has been lost to competitive forms of transportation.

Pullman All-Aluminum Compartment, Observation-Lounge Car . . . 823

A description of this equipment in the construction of which almost 50 per cent in weight was saved without sacrifice of strength or safety.

Designing Buildings for Fruit and Produce Terminals 831

An abstract of a report in which the A. E. R. A. Committee on Yards and Terminals discusses the design of facilities required for handling farm products.

EDITORIALS

Concerning "Excessive" Salaries 817
Nye and LaFollette Uncover a Sinister Plot 819
Research Must Continue 819

GENERAL ARTICLES

Traffic Recovery, The Railways' Greatest Problem 820
New York Central in 1932 822
Pullman All-Aluminum Compartment, Observation-Lounge Car 823
Wrought Iron Culverts 826
Railroad Bill Passed by House 827
"Share Expense" Travel a Racket, by Harry A. Koach 829
Freight Car Loading 830
Designing Buildings for Fruit and Produce Terminals 831

NEWS 834

REVENUES AND EXPENSES OF RAILWAYS 845

The Railway Age is indexed by the Industrial Arts Index and also by the Engineering Index Service

500
B.C.
1933
A CENTURY OF PROGRESS
CHICAGO
VISIT OUR EXHIBIT
BOOTH N, GROUP 19,
MEZZANINE FLOOR,
TRAVEL&TRANSPORT
BUILDING

2400 Years Ago-

"NEITHER rain, nor snow, nor heat, nor gloom of night stays these couriers from the swift completion of their appointed rounds". So wrote Herodotus, the Greek Historian, 2400 years ago. How truly descriptive are these words of the service rendered today by trains equipped with "Union" continuously controlled constantly visible cab signals.

Weather conditions, such as fog, smoke, sleet and storm, need no longer be obstacles in maintaining schedules so far as the visibility of signals is concerned. "Union" Cab Signals keep trains moving over the road despite such handicaps. They signal trains every foot of the way and schedule speeds are maintained in dense fogs. This system helps retain the good will of patrons by providing uninterrupted service; it increases the safety of operation and enables users to produce more ton miles per train hour at less cost. Its signals are not misinterpreted for they ride in the cab and are continuously before the engine crew.

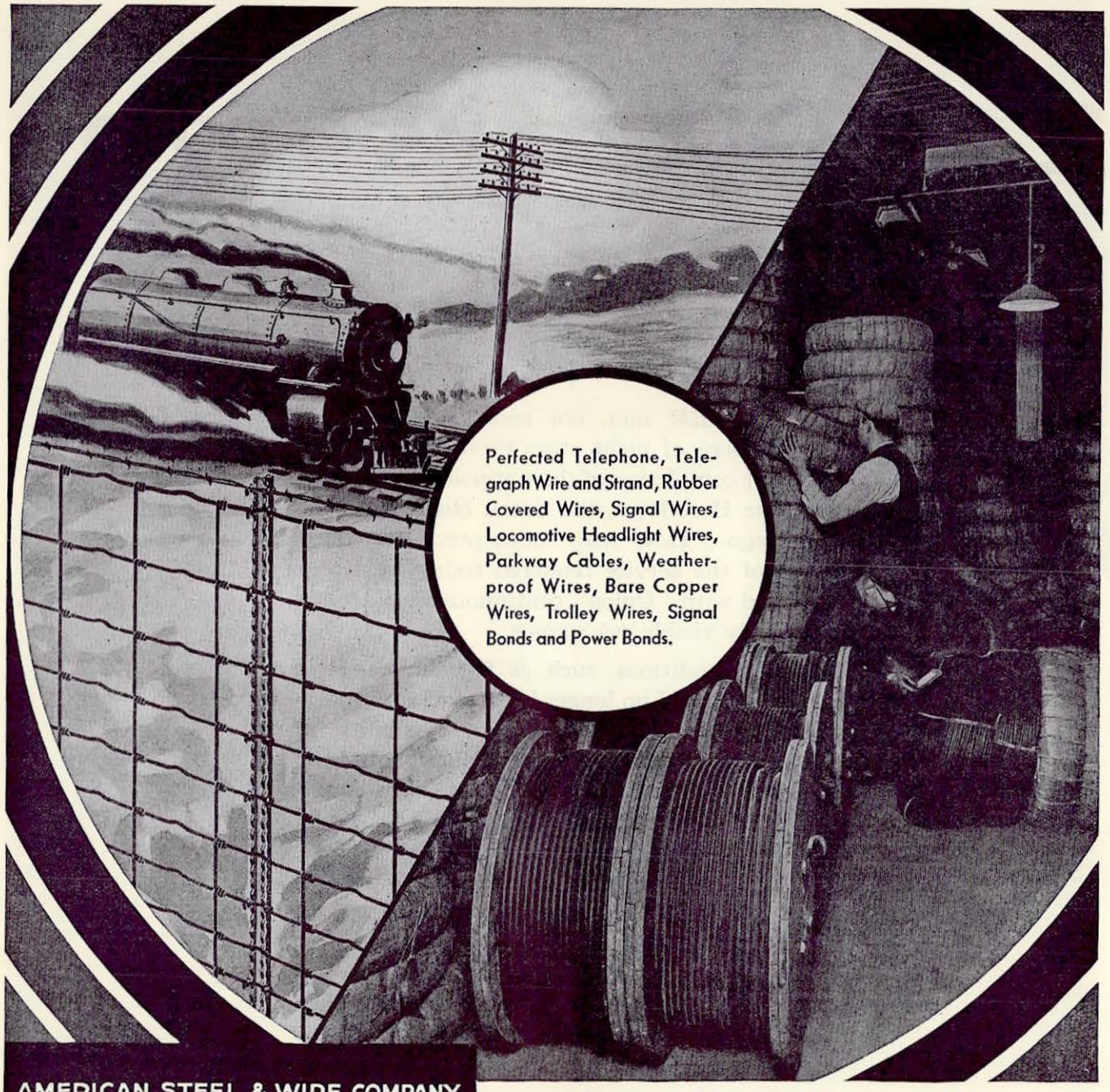
Ask our nearest district office what cab signals can do for your road.

Union Switch & Signal Co.
SWISSVALE, PA.

1881 1933

DISTRICT OFFICES

EW YORK MONTREAL CHICAGO ST. LOUIS SAN FRANCISCO



Perfected Telephone, Telegraph Wire and Strand, Rubber Covered Wires, Signal Wires, Locomotive Headlight Wires, Parkway Cables, Weatherproof Wires, Bare Copper Wires, Trolley Wires, Signal Bonds and Power Bonds.

AMERICAN STEEL & WIRE COMPANY

ELECTRICAL WIRES AND CABLES

Known To Be Dependable

In warehouse and store room, supervisors appreciate the convenience of dealing with one source of supply instead of several, with one high standard of quality instead of several. Men on the right-of-way know what it means to work with products that are known to be dependable, that make their own efforts more valuable.

American Steel & Wire Company Electrical Wires and Cables are recognized for dependable service at low cost. Our engineers are familiar with the needs of the railway field and the importance of an efficient, uninterrupted schedule. We can furnish Electrical Wires and Cables for any purpose.

1831 MORE THAN 100 YEARS of PROGRESS in WIRE MAKING 1933

AMERICAN STEEL & WIRE COMPANY

208 South La Salle Street, Chicago
94 Grove Street, Worcester

SUBSIDIARY OF UNITED STATES STEEL CORPORATION

AND ALL PRINCIPAL CITIES

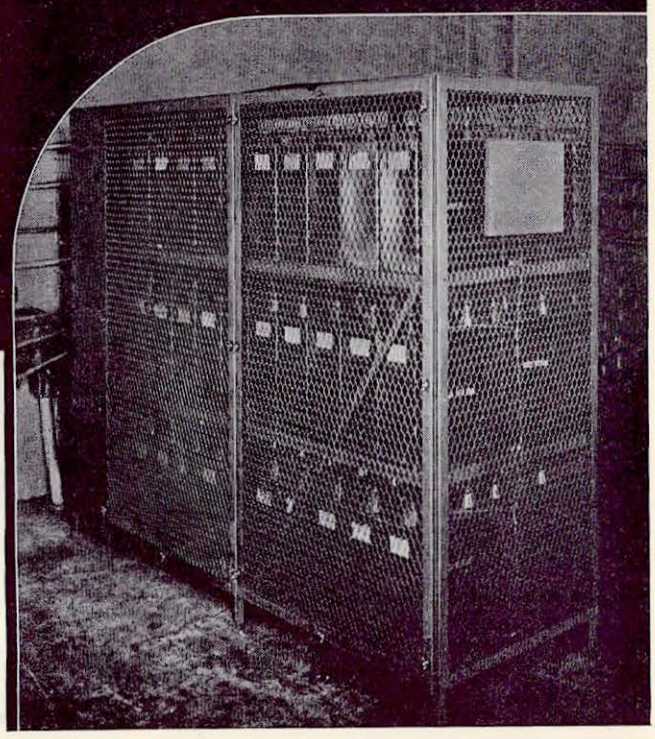
Empire State Bldg., New York
First National Bank Bldg., Baltimore

Pacific Coast Distributors: Columbia Steel Company, Russ Building, San Francisco

Export Distributors: United States Steel Products Company, New York

IMPROVED POWER FACTOR

SAVES COST OF ENLARGING *power plant facilities*



The 300-kv-a. Westinghouse Capacitor which improved power factor from 75 to 95% in a railroad repair terminal, saving the cost of enlarging power plant facilities.

★ ★ ★

IN a repair terminal of a large Eastern railroad, two 750-kw. turbine-generators were installed to supply electric power. One generator was large enough to carry the complete load, the other unit being used as a standby. With this arrangement, only one steam condenser was required.

Eventually, however, the electrical load increased so much that both turbine-generator sets were required. But with only one condenser they could not be operated in parallel except at such low efficiency that additional boiler capacity would be required.

One of a series of advertisements featuring self-liquidating modern improvements that many railroads are applying to reduce costs in shops, maintenance of way, and signaling operations.

There were three solutions:

1 Install a new boiler, stoker and smoke-stack at a cost of $15,000.

2 Install an additional steam condenser at a cost of $8,000.

3 Install a 300-kv-a. Westinghouse capacitor, costing $5,000 to raise the power factor from 75 to 95 per cent and therefore enable one generator to handle the load.

Naturally the capacitor was chosen. Besides saving the cost of additional power plant equipment, the capacitor eliminated the need for larger distribution transformers and transmission lines which would have been necessary had the power factor remained at 75 per cent.

The efficiency of Westinghouse capacitors is better than 99½ per cent. Having no moving parts, their maintenance costs are practically nil. The frames of the capacitor units are of standard welded construction with height, width and position of bolt holes such that the units can be bolted together to give any desired housing capacity.

A Westinghouse engineer will be glad to study *your* power system to determine possible economies through power factor improvement. Call the nearest Westinghouse office.

Westinghouse

Quality workmanship guarantees every Westinghouse product

SEND FOR INFORMATION

Westinghouse Electric & Manufacturing Company
Room 2-N—East Pittsburgh, Pa.

Gentlemen: Please send Reprint 505, "Low Power Factor, a Hidden Liability in Railroad Shops."

Name.....
Company.....
Position..... T 79535
Address.....RA 6-10-33

IT WILL NOT PAY—

(1) to attempt to meet increasing traffic with the locomotives now in daily operation, three-fourths of which are more than 12 years old.

(2) to return to service the many thousands of locomotives now awaiting repairs, most of which are more than 22 years old and obsolete.

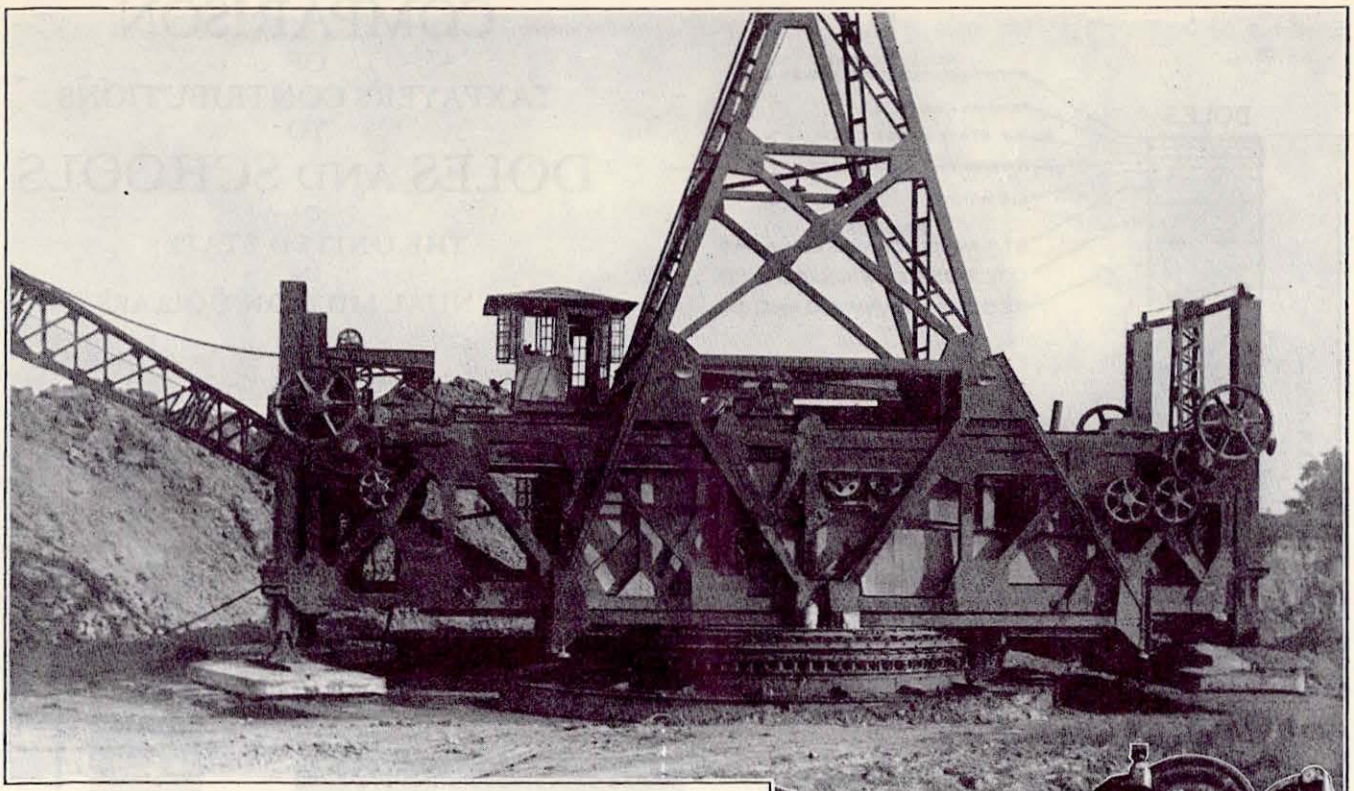
Now is the time to replace obsolete power with modern locomotives.

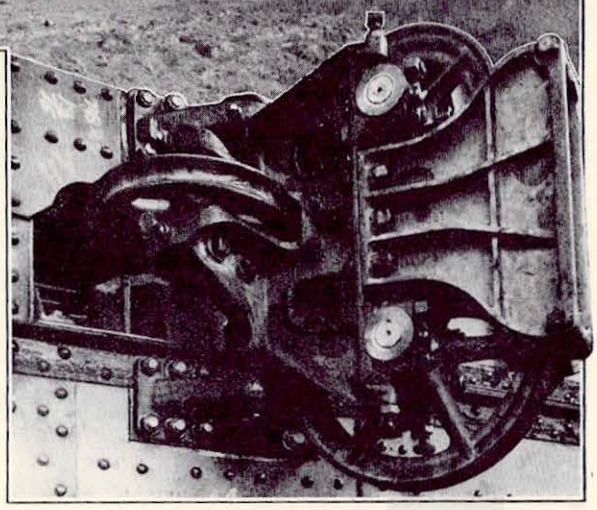
Even with present traffic, substantial savings and increased earnings will result immediately.

More than ever—it takes Modern Locomotives to make money these days!

THE BALDWIN LOCOMOTIVE WORKS

PHILADELPHIA





CASTINGS FOR UNUSUAL SERVICE

The world's largest mining machinery, heaviest dredges, most powerful cranes and derricks all have been made possible by dependable steel castings.

In the Industrial field the cost of replacing broken or damaged parts frequently involves large expense. It is significant that American Steel Foundries castings are specified on most important jobs. They are selected because their outstanding qualities have been proved in service time and again for more than a third of a century.

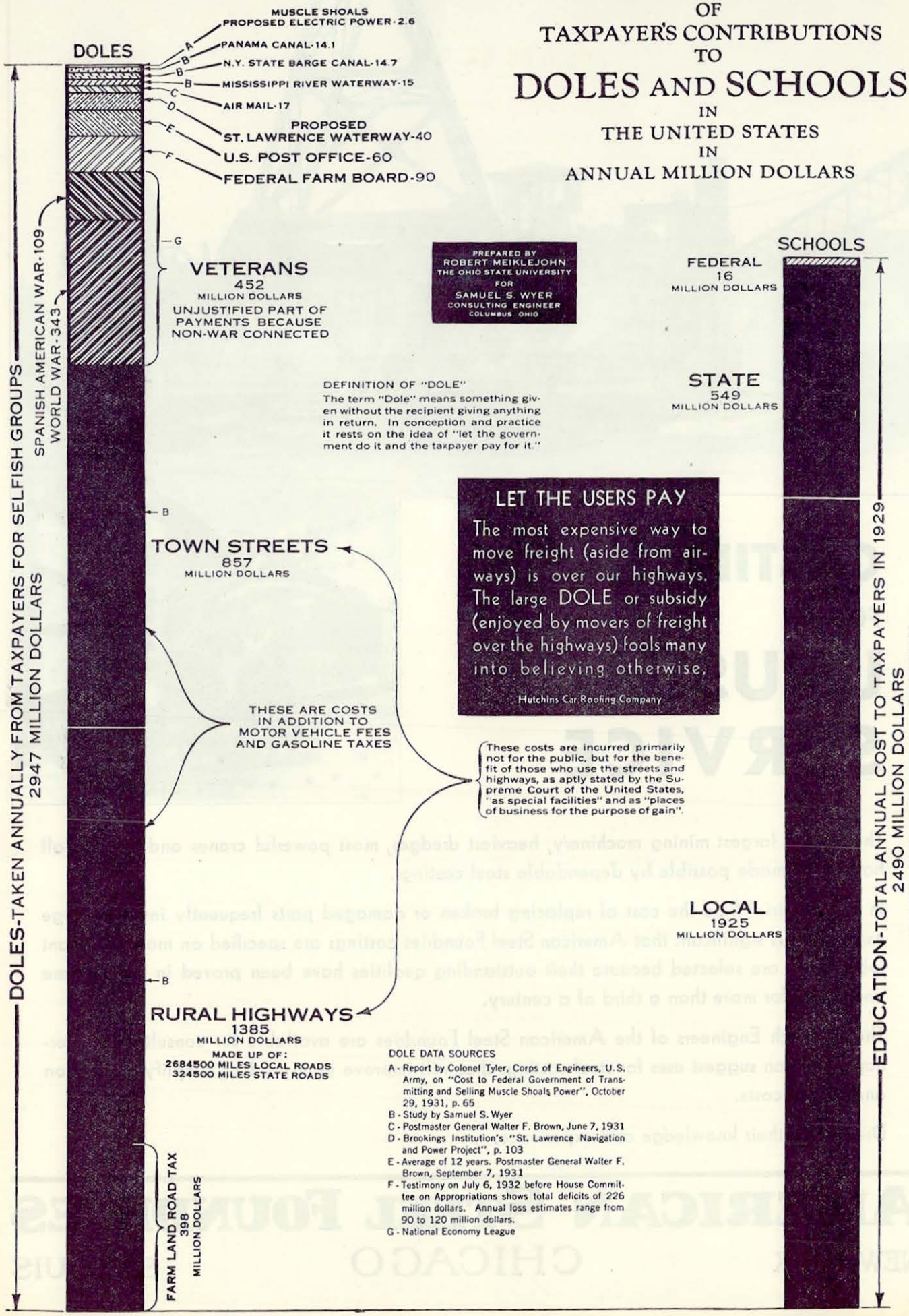
The Research Engineers of the American Steel Foundries are available for consultation. Perhaps they can suggest uses for steel castings that will improve your product, simplify production and reduce costs.

Draw upon their knowledge and experience.

AMERICAN STEEL FOUNDRIES

NEW YORK CHICAGO ST. LOUIS

COMPARISON OF TAXPAYER'S CONTRIBUTIONS TO DOLES AND SCHOOLS IN THE UNITED STATES IN ANNUAL MILLION DOLLARS


DOLES
MUSCLE SHOALS PROPOSED ELECTRIC POWER-2.6
PANAMA CANAL-14.1
N.Y. STATE BARGE CANAL-14.7
MISSISSIPPI RIVER WATERWAY-15
AIR MAIL-17
PROPOSED ST. LAWRENCE WATERWAY-40
U.S. POST OFFICE-60
FEDERAL FARM BOARD-90
A
B
B
B
C
D
E
F
G
SPANISH AMERICAN WAR-109
WORLD WAR-343
VETERANS
452
MILLION DOLLARS
UNJUSTIFIED PART OF PAYMENTS BECAUSE NON-WAR CONNECTED
PREPARED BY
ROBERT MEIKLEJOHN
THE OHIO STATE UNIVERSITY
FOR
SAMUEL S. WYER
CONSULTING ENGINEER
COLUMBUS, OHIO
SCHOOLS
FEDERAL
16
MILLION DOLLARS
STATE
549
MILLION DOLLARS
DEFINITION OF "DOLE"
The term "Dole" means something given without the recipient giving anything in return. In conception and practice it rests on the idea of "let the government do it and the taxpayer pay for it."
LET THE USERS PAY
The most expensive way to move freight (aside from airways) is over our highways. The large DOLE or subsidy (enjoyed by movers of freight over the highways) fools many into believing otherwise.
Hutchins Car Roofing Company
B
TOWN STREETS
857
MILLION DOLLARS
THESE ARE COSTS IN ADDITION TO MOTOR VEHICLE FEES AND GASOLINE TAXES
These costs are incurred primarily not for the public, but for the benefit of those who use the streets and highways, as aptly stated by the Supreme Court of the United States, "as special facilities" and as "places of business for the purpose of gain".
LOCAL
1925
MILLION DOLLARS
B
RURAL HIGHWAYS
1385
MILLION DOLLARS
MADE UP OF:
2684500 MILES LOCAL ROADS
324500 MILES STATE ROADS
FARM LAND ROAD TAX
398
MILLION DOLLARS
DOLES-TAKEN ANNUALLY FROM TAXPAYERS FOR SELFISH GROUPS
2947 MILLION DOLLARS
EDUCATION-TOTAL ANNUAL COST TO TAXPAYERS IN 1929
2490 MILLION DOLLARS
DATA FROM NATIONAL INDUSTRIAL CONFERENCE BOARD

DOLE DATA SOURCES

A - Report by Colonel Tyler, Corps of Engineers, U.S. Army, on "Cost to Federal Government of Transmitting and Selling Muscle Shoals Power", October 29, 1931, p. 65

B - Study by Samuel S. Wyer

C - Postmaster General Walter F. Brown, June 7, 1931

D - Brookings Institution's "St. Lawrence Navigation and Power Project", p. 103

E - Average of 12 years. Postmaster General Walter F. Brown, September 7, 1931

F - Testimony on July 6, 1932 before House Committee on Appropriations shows total deficits of 226 million dollars. Annual loss estimates range from 90 to 120 million dollars.

G - National Economy League

RAILWAY AGE

Concerning "Excessive" Salaries

The Reconstruction Finance Corporation has imposed conditions in making a loan to the Southern Pacific Company which have the effect of fixing the maximum salaries that can be paid by all companies to which loans of government funds shall be made by this corporation in future. The initiative in the matter was not taken by the Reconstruction Finance Corporation, but by Senator Dill of Washington, who introduced a bill to fix a salary maximum of $17,500 for companies borrowing through the Reconstruction Finance Corporation, but as the bill was passed by the House of Representatives it was amended to read, "what appears reasonable to the Reconstruction Finance Corporation." Under the conditions imposed salaries heretofore paid must be reduced, including previous reductions, as follows: more than $100,000 per year, 60 per cent; $50,000 to $100,000, 50 per cent; $25,000 to $50,000, 40 per cent; $15,000 to $25,000, 25 per cent; $10,000 to $15,000, 15 per cent; $4,800 to $10,000, 10 per cent. "It will be the policy of the corporation," it was announced, "to impose similar conditions in all future loans to railroads or other corporations paying excessive salaries." Reductions of 25 per cent or more already had been taken by higher officers of the S. P. and most other railways.

Significance of Government Action

This action by the federal government to reduce and limit salaries has virtually no significance from one standpoint, and great significance from some other standpoints. In March, 1932, there were 39 railway officers who were being paid $50,000 a year or more, and their combined salaries amounted to but nine one-hundredths of one per cent of total railway operating expenses. There were 190 men having the titles of vice-president, president or receiver, chairman of the executive committee and chairman of the board, and their salaries averaged $25,500, and aggregated $4,856,100, or fifteen one-hundredths of one per cent of total railway operating expenses. These figures show that as to the railways, at least, the salary reductions required have virtually no significance as a means of effecting economies.

Together with certain other developments, they are, on the other hand, highly significant as indicating the socialistic philosophy which is becoming increasingly prevalent and is increasingly dictating governmental action regarding business. America long has been called the "land of opportunity." What this has meant has been that in this country the way has been kept open for every boy to win success in proportion to his exertions and ability, and the generally accepted measure of success in business has been the amount of wealth or income acquired. Large wealth or income is an uncertain measure of merit, because either may be acquired by illegitimate means; but the view has been generally accepted that, assuming that the means used were honesty, hard work and ability, the acquisition of large wealth or a large income was worthy as an ambition and creditable as an achievement. It has also been assumed that leaving open to every person the way to acquiring large wealth or income was in the public interest, because it would stimulate the ambitious who engaged in private business to exert themselves to the utmost, and that in doing so they would contribute many times more to the national wealth and income than they would gain for themselves.

The Competition for Brains

As a result of the development of larger and larger business units in most major industries, the ownership of a great part of the property of the United States has become diffused among many thousands of stockholders of big corporations, and the management of these big companies has passed more and more into the hands of officers owning little or no stock in them, and dependent mainly or entirely upon the salaries paid to them for their rewards for their work. It still remains possible, however, for men, as both owners and managers, to acquire large wealth and incomes in developing and operating comparatively small companies in many fields. It is still by no means unusual for a man who is the principal stockholder and president of a manufacturing or a mercantile company with gross earnings, say, of only five to 10 million dollars a year to derive from it dividends and a salary giving him a total income in excess of $150,000, which was the highest salary paid to any railroad officer during the recent period of prosperity.

There is, therefore, still competition between small

business and big business for men of ability, as well as competition between big companies in the same and in different fields for men of ability. Whatever forms of over-production there may have been, there has not been any over-production of brains, and competition for brains, stimulated by the increasing excess of demand over supply, has been responsible for the increasing size of the salaries paid by big companies to their chief executives and other higher officers. The larger a company is, the greater is the energy and ability required to manage it. The greater is a man's demonstrated ability, the more opportunities the competition for brains affords him.

If the industry and commerce of the country are to continue to be conducted in increasing measure by large companies, either the salaries paid by big companies will have to be large enough to attract the best business brains, or there will be a decline instead of a continuing increase in the efficiency and economy with which production and commerce are conducted. The railroads include many business units which are among the largest, and therefore among the most difficult to manage successfully, and a permanent policy of drastically curtailing and limiting railroad salaries would, in course of time, deprive the railroad industry of the brains that the interests of railroad security owners, of railroad employees and of the public imperatively demand shall be devoted to its management.

Shall We Level Down or Level Up?

The economics of the matter seem plain enough. Why, then, the demand for drastic reductions of the salaries paid by large companies, and especially by railroad companies? Identification of the source from which the demand comes helps to answer this question. It does not come from the owners of the securities of the companies paying the salaries, but from radical politicians and the radically-minded class of persons with small incomes upon whom these politicians rely for votes; and it results in horizontal and undiscriminating reductions which completely disregard the comparative merits of the recipients of the salaries. In other words, it is simply a movement to pull down those who have risen above the level of the mass, and is dictated by that envy of economic success which creates more radicals and socialists, and causes the adoption of more socialistic policies, than all other causes combined. No reasonable person does or can object to reductions of wages and other incomes being accompanied by reductions of large salaries; but the objective of governmental and business endeavor should be to create conditions which will increase small incomes rather than reduction of large incomes; and when simultaneously, as at present, efforts are made by government to increase small incomes and to reduce large ones the dominance of the socialistic desire to establish equality of incomes, regardless of inequality of efforts and brains, becomes apparent.

The spirit illustrated, first by the proposal to limit to $17,500 a year all salaries paid by the companies to which the government makes loans, and subsequently by the limitations imposed by the Reconstruction Finance Corporation, and its reference to "railroads or other corporations paying *excessive* salaries," is not a new one for socialists and radicals to show, but its apparent prevalence among the people of the United States is something new. There is no exact measure of the economic worth of any man, whether he works with hands or brains. If salaries are to be determined, as they have been in the past, by competition for brains, some men will receive in the future, as in the past, very high, and what may be regarded as "excessive," salaries because they will show ability that will cause keen competition by big companies for their services. If, on the other hand, competition for ability is to be eliminated as a factor, there will be left no measure for fixing the salaries of the ablest men excepting comparison with the wages and salaries of the less able, and the consistent use of this measure all the way down the line would finally result in the officers of the largest corporations being paid little or no more than the wage fixed for a good mechanic by collective bargaining.

Just why should any young man, with a good job as a mechanic or a stenographer, requiring only six or eight hours of comparatively easy work daily, then follow the example of those who have been successful heretofore by beginning to subject himself to twenty or thirty years of arduous study, iron discipline and tremendous exertion in an effort to rise to the vice-presidency or presidency of a big company? Only those—and they include mighty few politicians—who actually have paid the price of "success" in business by enduring all the nerve-racking and health-destroying labors, cares and responsibilities of managing large concerns in periods of both prosperity and depression, seem to have the slightest conception of the fact that no man who has paid that price would ever willingly pay it again without the expectation of financial rewards such as the Reconstruction Finance Corporation has lightly and socialistically chosen to brand as "excessive."

The business interests of the United States owe to the American people the duty of protesting with all their energy against the socialistic policy of limiting by government fiat the salaries that can be paid to the officers of railroads and other large corporations. Big corporations must be managed by big men who must devote all their time and energies to them if they are to be managed successfully, and big salaries are the prizes which are hung up to stimulate the exertions of ambitious men, and develop all their latent capacities in order that they may become big enough to manage big business. Permanently to take down the big prizes, which finally can be won by only a few, would be to reduce efficiency in the conduct of the railroads and other large companies to the level of the efficiency prevailing in the government bureaucracies.

Nye and LaFollette Uncover a Sinister Plot

Those sturdy fighters against the "interests" and hardy defenders of the pork barrel into which they dip so frequently and so generously, to wit, Senators LaFollette and Nye, have laid bare a plot. The opposition to the St. Lawrence waterway, they have found, emanates from the House of Morgan. Certain of the members of the Chamber of Commerce of the State of New York, it appears, have financial connections with the Morgan firm. The Chamber of Commerce opposes the St. Lawrence canal. That is their crime and their connection with Morgans' explains it—as simple as that.

We have no specific information as to the opinion of the Morgan firm on the St. Lawrence waterway. We have no reason to believe, however, that its view of this project would be essentially different from that of intelligent and socially-minded persons anywhere who have taken the trouble to examine the details of the proposal, namely that it is a complete perversion of economic sense and political honesty. But the Morgan firm's interests are far-flung. What may happen to industrial New York State or to commercial New York City is much less a concern to the House of Morgan than it is to interests, represented in the Chamber of Commerce of New York State, which have all their funds invested in an area which the St. Lawrence project would deprive of most of its trade.

There is, in other words, more than ample reason for the Chamber of Commerce of New York to oppose this project to the utmost on the simple grounds of self-preservation—a motive far stronger than any which could actuate the Morgan firm in opposing it.

But the Morgans in the demonology of the demagogues are subtle and sinister. There is yet another organization in opposition to the St. Lawrence seaway, which the noble Senators overlooked. Following the reasoning which lays to the banking house the opposition of the Chamber of Commerce, that of this body, ipso facto, must also spring from the same baleful power. We quote:

> The present transportation plant and personnel is ample to handle the present and anticipated needs of the country for many years to come. The waterway is not justified by economic necessity. It would affect adversely railroad labor conditions in the United States and Canada, and would greatly increase unemployment.
>
> The construction of a St. Lawrence shipway would contribute to the breaking down of our present rail transportation system. It would nullify the efforts made by the U. S. government to protect our rail transportation industry, and the millions of its outstanding securities held by insurance companies, financial institutions and individual citizens.

That is, in part, a resolution adopted by the Railway Labor Executives' Association, a group that has usually made heroes of such mountebanks as the "progressive" politicians, and which heretofore, at least, has been free of suspicion of being under Morgan domination.

Why are not Senators Nye and LaFollette more consistent in their illogic? If it was the evil influence of the House of Morgan, rather than enlightened self-interest, which caused the New York Chamber of Commerce to oppose the St. Lawrence project, then why not ascribe the same cause to the opposition of the railway union leaders? And as for the latter—the union executives—what do they think of their heroes? Can the man who does his level best to take traffic from the railways be considered a friend of railway labor?

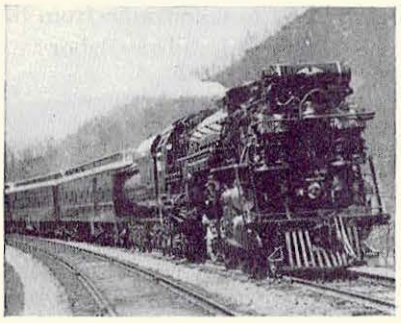
Research Must Continue

It has been well said that the pursuit of research may be compared to an ever-expanding circle, the area of which measures the fund of knowledge gained while the circumference represents the widening contact with the unknown. Thus, as has been clearly shown, the railways have profited immeasurably from the fruits of research, but this very fact has pointed the way to further projects that promise even greater returns. It suffices to cite a single example.

It has long been recognized that moving loads produce stresses in a bridge greater than those resulting from the application of the same loads in a static condition, with the result that certain arbitrary percentages known as impact factors have been added to the live loads to take account of this added effect. Tests conducted by Dean Turneaure a generation ago showed that impact in steel bridges bears a definite relation to the hammer blows produced by the counterbalancing of locomotives, and within the last five years this phenomenon has been rationalized to the point where it will require only a minor amplification of the test data now available to permit of a sound analytical determination of the impact effects with respect to any combination of bridge and live load characteristics. This development is of great economic value, since the possession of an accurate means of analysis will enable the bridge engineer to work within much closer limits in determining whether an old bridge may be safely retained in service under increased loads.

Practically no corresponding facts are available concerning concrete structures, with respect to which the problem is further complicated by the absence of any knowledge of the "dampening" effect of superimposed embankments. Obviously, the impact is dissipated in some measure by the fill, but how much? Because the designer must resort to guess-work, it is certain that he will be conservative. It is true that designers have succeeded in building safe concrete structures without any accurate knowledge of impact effects. For the same reason that studies of impact in steel bridges have shown that allowances for this influence have generally erred on the side of conservatism, there is reason to believe that investigation of the effect of impact on concrete structures would justify corresponding economies in their design.

Traffic Recovery, The Railways' Greatest Problem



With transport monopoly ended by rise of competitive carriers, changes in operating and merchandising methods must be made

TIMES have changed on the railways. There was a time when travelers as a matter of course were inevitably railroad passengers. Possessing the only open highways and operating virtually the only passenger vehicles, the railroads enjoyed the position of offering the one satisfactory form of passenger transportation to be found in the country. Travelers had no recourse; if they traveled at all, they traveled by rail. The same situation applied to freight traffic. Except for the few localities where water transportation was available, the transportation needs of cities, towns and farming areas everywhere were supplied only by the railways. Shippers of freight, whether of bulk commodities moving long distances or of small packages moving short distances, had no choice in the matter. They shipped by rail because there was no other way to ship.

Such were the conditions only a few years ago. Competition between railways and other forms of transportation existed only to a limited extent, between points where water transportation was available. Elsewhere—which meant almost everywhere—such competition as existed was limited to competition between railways serving common points. But the railways as a whole had an almost complete monopoly of the transportation facilities of the country.

The Effects of Monopoly

This condition exerted a strong influence upon the organization and methods of the railways. It placed more emphasis upon and increased the importance of what might be termed the "production department" of the railways—their operating, mechanical and engineering departments. It placed less emphasis upon and decreased the importance of the "sales department" of the railways, so that the traffic departments were less concerned with the selling of railroad transportation than they were with the acceptance of orders for such transportation placed by travelers and shippers. Since there was competition only with other railways, and since business policy—in the later years, at least—dictated that this competition should not be permitted to become too active, the actual selling functions of the railway traffic departments were pushed definitely into the background.

Monopoly shaped the activities, too, of the other departments of railroading. There was less incentive to make railway freight and passenger transportation attractive to shippers and travelers. This consideration was far outweighed by the importance of constant striving toward cheaper rather than better transportation. Speed, modern comforts, auxiliary services, were expensive and, therefore, given little attention. All railroading was concentrated upon the goal of economy. Shippers and travelers may not have liked railway service, but they had to use it. The railways had a transportation monopoly.

Railroad Monopoly Ended

Such was the situation up to 10 or 15 years ago. Then began the change which has since exerted such a profound influence not only upon the railways but also upon the travel and shipping habits of the public. For the first time since the railways themselves entered the transportation field as aggressive competitors of the stage coach and the canal, competition between different kinds of carriers made its appearance. On thousands of miles of new highways, hundreds of thousands of automobiles appeared. Following the automobile came thousands of motor buses, and in their wake were fleets of motor trucks or tractor-and-trailer trains in even larger numbers. On inland waterways provided at government expense, government-operated barges began to move from port to port. Overhead, airplanes for passengers, mail and express set a new standard for speed in transportation. All of these afforded facilities for transportation alternative to those of the railways. No longer was the railway the only means of inland transportation. Passengers had the choice of train, automobile, motor bus or airplane travel. Shippers had the choice of rail, waterway, highway or air transportation. The railroad monopoly of transportation was ended. The end of the railroad monopoly in transportation is

the most important fact which the railways have faced in the last decade.

What has been the effect of the termination of the railroad monopoly in transportation, and of the rise of new, competing forms of transportation, upon the railways and their traffic? The effect has not been slight. In the 10 years from the beginning of 1923 to the end of 1932, the decade in which the railways finally lost their monopoly of transportation, revenue freight ton-miles declined from 412,727,000,000 to 234,320,000,000, while revenue passenger-miles sagged from 37,957,000,000 to 16,975,000,000. In terms of revenue, the decline on account of losses in freight traffic was from $4,622,000,000 to $2,451,000,000, while the loss of passenger business resulted in the reduction of revenue from $1,148,000,000 to $377,000,000.

Traffic Decline Due to Competition

Much of the decline in railway passenger and freight traffic since the latter part of 1929 has been due, of course, to the general depression in all business. But this is not evidence that the current low volume of railroad passenger and freight traffic is due solely to the depression and has developed only because of that. The fact of the matter is that the railroads' loss of monopoly in transportation and the expanding operations of their competitors reduced railway traffic and earnings even during the years of great prosperity in the country's industries. Between 1923 and 1929, when general business and even the railroad business, taken as a whole, were setting new records for volume, the encroachment upon the passenger traffic of the railways, resulting from the increasing popularity of the railways' competitors, caused a decline in railway passenger-miles from 37,957,000,000 in 1923 to 31,074,000,000 in 1929, passenger revenues correspondingly declining from $1,148,000,000 in 1923 to $874,000,000 in 1929. The loss of passenger-miles over this period was 18 per cent, while the loss of passenger revenue was 24 per cent.

At the same time, when the carload business was setting new peaks, the l.c.l. freight traffic of the railroads —the first class of traffic to feel the effect of truck competition—was sharply declining. L.c.l. freight tonnage in 1923 was 44,339,000 tons, while in 1929 it was 19 per cent less, or 36,043,000 tons. Finally, although its effect has been obscured by the traffic decline resulting from the business depression, it is a fact that highway, waterway and airway competition has been much more severe since 1929 than it was before that year.

It is impossible to state definitely what proportion of the business which the railways have lost during the last four years has been due to the business depression and what proportion has been lost because of the existence of competing agencies of transportation. One estimate of the amount of freight revenue which the railways lost in 1932 because of truck competition is $500,000,000, this being based upon a thorough investigation in 17 Mississippi Valley states. It is believed that this estimate is conservative rather than excessive, and when there is added to it the further losses of passenger and freight revenue to other kinds of competitors, it is obvious that the competition which the railways are facing through the loss of their monopoly of transportation facilities is of grave importance.

Traffic Recovery the Greatest Problem

The situation now faced by the railways makes the recovery of lost freight and passenger traffic their greatest problem. Some increases in freight traffic and perhaps also in passenger traffic will naturally accompany an upturn in general business, no matter what the railways may do or fail to do. At the same time, the future of the railroad business, and the protection of its revenues and traffic from further erosion because of the activity of competitors, depends upon the recovery of traffic which has not dried up because of general business inactivity but which has been won away from the railways by their competitors. The railways could not and cannot afford to get along permanently without the traffic which has been taken from them by competitors on land, on water and in the air.

The fundamental question, then, is as to what the railways can do to recover traffic from their competitors. Ways and means of traffic recovery are the things for which the railways are searching today. Perhaps the right clues to these lie in the experience of industries outside the transportation field. Other industries, in meeting competitive conditions, have accomplished their purpose by pursuing one or more of three distinct courses. They have improved their product, they have adjusted the price of their product, or they have improved their selling methods. It is believed that the solution to the problem of traffic recovery by the railways lies also along these three lines which have been followed successfully by other industries.

A Traffic Development Series

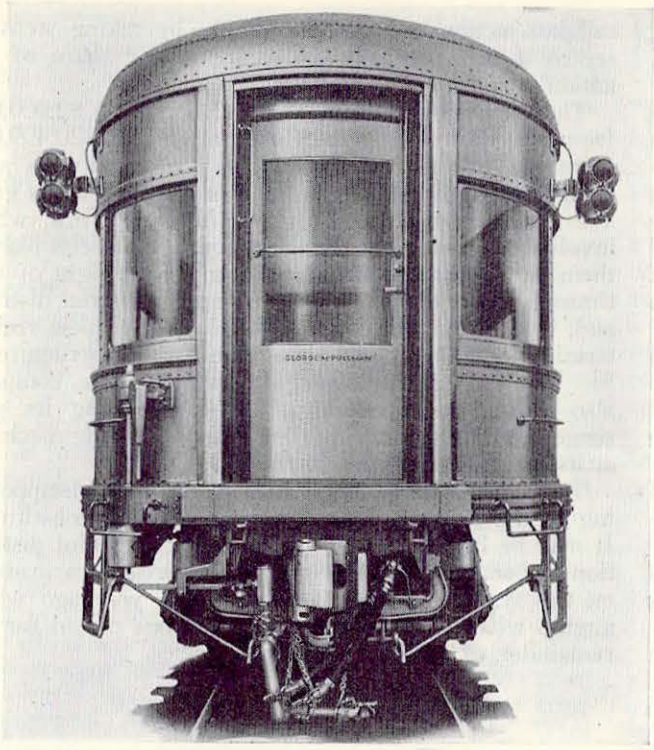
This is the first of a series of 20 articles on a subject of primary importance to the railways—how to recover passenger and freight traffic which has been lost to competitive forms of transportation. The series will report upon, suggest, discuss and evaluate the many ways in which the railways can strengthen their competitive position and recoup their traffic losses by improving their service, by re-pricing it, or by changing their selling methods. The next article in this series, the first of two on railway passenger rates, will be published in the *Railway Age* of June 24.

Wherein Lies the Answer?

How can the passenger and freight service of the railways—their product—be improved? Will the air conditioning of passenger trains bring back to them passengers who now fly or travel by automobile or motor bus? Does passenger equipment need modernizing for the purpose of making rail travel more comfortable? Is greater speed what the traveling public wants? Can the railways use their Pullman service to better advantage, and can another auxiliary of railway transportation—the motor coach—be used in such a way as to contribute to railway passenger revenues?

Will the provision of store-door collection and delivery service for freight recoup the freight traffic losses which the railways have suffered at the hands of competitive motor trucks? Can railway freight service be improved by the use of freight containers or smaller freight cars? Is speed such that freight train schedules rivaling those of the fastest passenger trains constitute a consideration which will cause shippers to route their freight by rail rather than by some competitive form of transportation?

Is it the price of railway transportation which is send-



The Rounded Rear End of the Car

As explained in the preceding article, all parts of the car are constructed of strong aluminum alloys, with the exception of steel used in wheels, axles, springs, brake shoes and all friction parts subject to wear. Even the insulating material used is a crumpled aluminum foil. The substantial, well-braced continuous center sill is of the "fish-belly" type, as differentiated from the straight-line center sill used in the Pullman aluminum observation-coach.

The same general fabricating methods are employed as in the coach, full advantage being taken of the interlocking construction possible with extruded sections and resulting in a car body which is said to have even less deflection under load than an equivalent steel structure.

Latest Developments in Air-Conditioning

Rubber inserts are employed at couplers and under side bearings, and a special front vestibule construction, in conjunction with a rubber-type draft gear and buffing device, is designed largely to eliminate noise occasioned by the slack running in and out. The air-conditioning equipment installed is the latest improved system developed by the Pullman Car & Manufacturing Corp. and providing automatic thermostatic control of temperature and humidity conditions in accordance with individual room requirements.

Trucks Have One-Piece Cast-Aluminum Frames

One of the notable features of the new car is the provision of Commonwealth-type four-wheel trucks, designed by the General Steel Castings Corporation and having one-piece aluminum frames cast at the Cleveland (Ohio) plant of the Aluminum Company of America. This four-wheel truck, made possible by the reduced weight of the car, weighs only 13,500 lb., including the mechanical drive. It is especially designed for easy riding and has been subjected to extensive tests and X-ray examination to make sure that no flaws or defects are present in the frame structure.

Decoration and Equipment

In developing the "Contemporary" architectural and decorative treatment of the George M. Pullman, the Pullman Company employed Samuel A. Marx, Chicago, as consulting architect and decorator. The exterior of the car is aluminum of scratch-brush finish. The only other color is that of gilded brass used for the names and in longitudinal stripes along the body of the car. Inside the car, natural aluminum is the dominant decorative factor, and every tone in furniture, wall decoration, ornamental design and upholstery, is complementary to the silvery sheen of this metal.

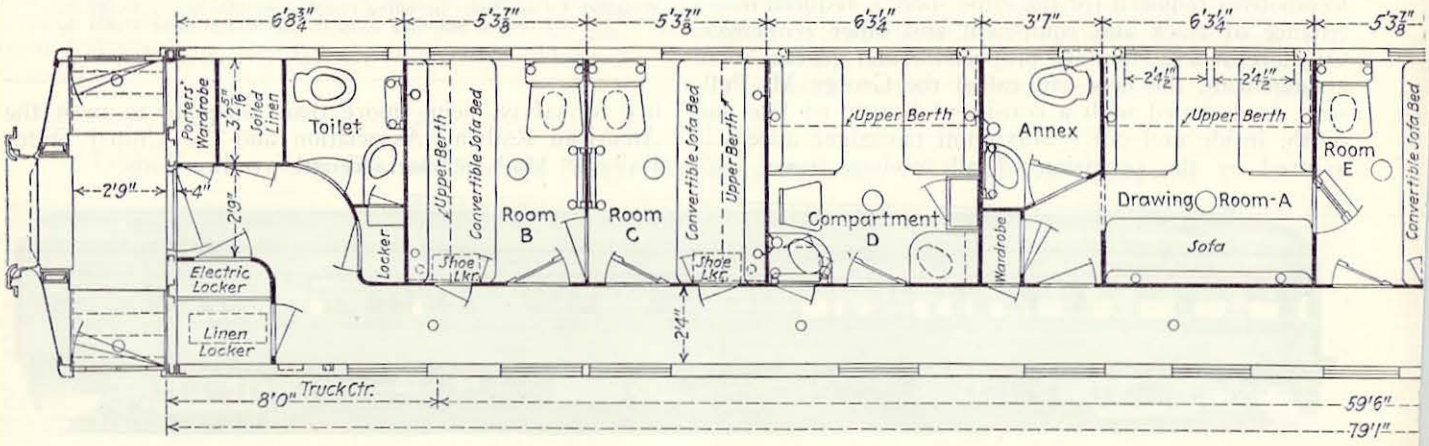
The decorative scheme in the 33-ft. observation room is simple yet dignified. The bases of the walls are brushed natural aluminum, while the upper part of the walls and ceiling is painted in cream, with a slight tan tinge. Extruded straight-line and Grecian aluminum moldings top the walls. Above these moldings is a continuous light trough in which electric bulbs, by the aid of mirrors, project their light to the ceiling. The entire room has this indirect lighting system; there are no ceiling fixtures, wall lamps, or table lamps. The same system of lighting is also utilized in the passageways.

The floor of the observation-lounge is covered, as is the hallway, with a carpet in soft brown with a pattern of silver wreaths slightly toned with green.

The window shades, another striking novelty, are in fabric of shades varying from light tan to dark brown, the design simulating a Venetian blind.

Fixtures and Furniture Especially Designed for the Car

All fixtures, in fact, everything in the car, were specially designed and built, including the furniture in the



Floor Plan of the Pullman All-Aluminu

the most important fact which the railways have faced in the last decade.

What has been the effect of the termination of the railroad monopoly in transportation, and of the rise of new, competing forms of transportation, upon the railways and their traffic? The effect has not been slight. In the 10 years from the beginning of 1923 to the end of 1932, the decade in which the railways finally lost their monopoly of transportation, revenue freight ton-miles declined from 412,727,000,000 to 234,320,000,000, while revenue passenger-miles sagged from 37,957,000,000 to 16,975,000,000. In terms of revenue, the decline on account of losses in freight traffic was from $4,622,000,000 to $2,451,000,000, while the loss of passenger business resulted in the reduction of revenue from $1,148,000,000 to $377,000,000.

Traffic Decline Due to Competition

Much of the decline in railway passenger and freight traffic since the latter part of 1929 has been due, of course, to the general depression in all business. But this is not evidence that the current low volume of railroad passenger and freight traffic is due solely to the depression and has developed only because of that. The fact of the matter is that the railroads' loss of monopoly in transportation and the expanding operations of their competitors reduced railway traffic and earnings even during the years of great prosperity in the country's industries. Between 1923 and 1929, when general business and even the railroad business, taken as a whole, were setting new records for volume, the encroachment upon the passenger traffic of the railways, resulting from the increasing popularity of the railways' competitors, caused a decline in railway passenger-miles from 37,957,000,000 in 1923 to 31,074,000,000 in 1929, passenger revenues correspondingly declining from $1,148,000,000 in 1923 to $874,000,000 in 1929. The loss of passenger-miles over this period was 18 per cent, while the loss of passenger revenue was 24 per cent.

At the same time, when the carload business was setting new peaks, the l.c.l. freight traffic of the railroads —the first class of traffic to feel the effect of truck competition—was sharply declining. L.c.l. freight tonnage in 1923 was 44,339,000 tons, while in 1929 it was 19 per cent less, or 36,043,000 tons. Finally, although its effect has been obscured by the traffic decline resulting from the business depression, it is a fact that highway, waterway and airway competition has been much more severe since 1929 than it was before that year.

It is impossible to state definitely what proportion of the business which the railways have lost during the last four years has been due to the business depression and what proportion has been lost because of the existence of competing agencies of transportation. One estimate of the amount of freight revenue which the railways lost in 1932 because of truck competition is $500,000,000, this being based upon a thorough investigation in 17 Mississippi Valley states. It is believed that this estimate is conservative rather than excessive, and when there is added to it the further losses of passenger and freight revenue to other kinds of competitors, it is obvious that the competition which the railways are facing through the loss of their monopoly of transportation facilities is of grave importance.

Traffic Recovery the Greatest Problem

The situation now faced by the railways makes the recovery of lost freight and passenger traffic their greatest problem. Some increases in freight traffic and perhaps also in passenger traffic will naturally accompany an upturn in general business, no matter what the railways may do or fail to do. At the same time, the future of the railroad business, and the protection of its revenues and traffic from further erosion because of the activity of competitors, depends upon the recovery of traffic which has not dried up because of general business inactivity but which has been won away from the railways by their competitors. The railways could not and cannot afford to get along permanently without the traffic which has been taken from them by competitors on land, on water and in the air.

The fundamental question, then, is as to what the railways can do to recover traffic from their competitors. Ways and means of traffic recovery are the things for which the railways are searching today. Perhaps the right clues to these lie in the experience of industries outside the transportation field. Other industries, in meeting competitive conditions, have accomplished their purpose by pursuing one or more of three distinct courses. They have improved their product, they have adjusted the price of their product, or they have improved their selling methods. It is believed that the solution to the problem of traffic recovery by the railways lies also along these three lines which have been followed successfully by other industries.

A Traffic Development Series

This is the first of a series of 20 articles on a subject of primary importance to the railways—how to recover passenger and freight traffic which has been lost to competitive forms of transportation. The series will report upon, suggest, discuss and evaluate the many ways in which the railways can strengthen their competitive position and recoup their traffic losses by improving their service, by re-pricing it, or by changing their selling methods. The next article in this series, the first of two on railway passenger rates, will be published in the *Railway Age* of June 24.

Wherein Lies the Answer?

How can the passenger and freight service of the railways—their product—be improved? Will the air conditioning of passenger trains bring back to them passengers who now fly or travel by automobile or motor bus? Does passenger equipment need modernizing for the purpose of making rail travel more comfortable? Is greater speed what the traveling public wants? Can the railways use their Pullman service to better advantage, and can another auxiliary of railway transportation—the motor coach—be used in such a way as to contribute to railway passenger revenues?

Will the provision of store-door collection and delivery service for freight recoup the freight traffic losses which the railways have suffered at the hands of competitive motor trucks? Can railway freight service be improved by the use of freight containers or smaller freight cars? Is speed such that freight train schedules rivaling those of the fastest passenger trains constitute a consideration which will cause shippers to route their freight by rail rather than by some competitive form of transportation?

Is it the price of railway transportation which is send-

ing passengers and freight to competitors of the railways? Will rate reductions attract more passengers to railway trains? The level of passenger fares is one of the most controversial questions of the day, and rightly so. Possibly general reductions in passenger rates would do more than anything else to restore the railways to their position as the leading passenger carriers of the country.

How can the railways improve their transportation selling methods? Are the selling methods of railway passenger departments such as to entice the largest number of passengers to railway travel in the face of competition not only from other forms of transportation but also from industries totally unrelated to transportation, which are making constantly more insistent demands upon the time and money of the public? Is freight traffic solicitation as effective as it might be? Do the railways make adequate or proper use of advertising, that trump card in the selling of any kind of product or service, in the sale of their freight and passenger service?

With this article, the *Railway Age* is beginning the publication of a series of 20 articles on the general subject of "Traffic Development" in which it hopes to answer these questions. Fortunately, there is a background of experience upon which to base the answer to each of these vital questions. Some railways have tried one thing while their neighbors have tried others. With the cooperation of manufacturers of railway equipment, who are as much concerned as the railways in railway traffic recovery, new types of equipment have been designed, constructed and placed in service, some, if not all, of which will undoubtedly contribute to the ultimate success of the railways' efforts toward traffic recovery.

Keeping facts and experiments always uppermost, and with a minimum of conjecture, this series of articles will attempt to show what has been right and what has been wrong about the experiments already made by the railways, with a view to pointing the way toward more successful efforts in the future. At the present time, the railways and the manufacturers of railway equipment constitute a huge laboratory in which the pre-eminently successful railway transportation of the future is being developed. This series of articles will report the findings of this laboratory.

Other industries have met competitive conditions and so can the railways. What is needed is an appreciation of the situation, a willingness to change railway service to make it conform more closely to the modern needs of shippers and travelers, and a disposition to try, and if possible improve upon, pricing and selling methods which have been found successful on many occasions, not only in the railway industry but in other industries. By suggesting, discussing and evaluating ways in which the railways can make more successful efforts toward traffic recovery, the *Railway Age* hopes to perform an important and timely service for the industry to which it is devoted.

New York Central in 1932

THE New York Central's operations in 1932 evidence the appalling depth of the depression, the inroads of subsidized competition and the terrible burden of taxation. This great property which, in 1929, including leased lines, had net income of $77,428,583, in 1932 had a deficit after charges of $18,256,400. Operating revenues were $293,636,140 which, despite the fact that this represents a decline of 50.2 per cent under 1929, is still a great deal of money, giving some indication of the reliance which the public still must place upon the railroad for transportation service in spite of the depression and growth of alternative, tax-fed transport agencies.

Operating expenses totaled $227,176,620, a decrease of 48.5 per cent from 1929. The reduction in taxation, by comparison, from the height of the boom to the depths of 1932, was less than 25 per cent. Taxes in 1932 exceeded the deficit by about 64 per cent.

Compared with 1931, freight tonnage last year showed a decrease of 24.1 per cent in volume and 21.4 per cent in revenue. Passengers carried totaled approximately 51 million, a decline of over 12 million and revenues from this traffic amounted to 60 million dollars, a decrease of 26 millions from the preceding year. Operating expenses in 1932 were reduced in greater proportion than the decline in operating revenues with the result that the operating ratio declined from 80.34 in 1931 to 77.37 in 1932.

Table I—New York Central, Including Leased Lines Revenues and Expenses, 1932 and 1929 Compared

Railway Operating Revenues	$293,636,140	$590,009,623	−50.2
Railway Operating Expenses	227,176,620	441,245,593	−48.5
Net Revenue from Railway Operations	66,459,520	148,763,030	−55.3
Taxes and Uncollectible Revenue	30,174,314	39,905,102	−24.4
Railway Operating Income	36,285,206	108,857,928	−66.7
Equipment and Joint Facility Rents	15,472,219	5,155,149	−70.0
Net Railway Operating Income	20,812,987	103,702,779	−79.9
Other Income	23,684,035	34,174,681	−30.7
Gross Income	44,497,022	137,877,460	−67.7
Deductions from Gross Income	62,753,422	60,448,877	+3.8
Net Loss	18,256,400	*77,428,583	−123.6
Sinking Funds, etc.	70,150	190,949	−63.3
Dividends	.....	37,090,532	....
Deficit for the Year	18,326,550	*40,147,102	−145.6

* Surplus.

The balance sheet of the company reflects its great strength, provided sufficient traffic offers to make reasonable use of the facilities it provides. Outstanding at the end of the year was a total of $499,259,735 of capital stock, with which may be compared corporate surplus of $242,807,634. This surplus declined 29 millions from the preceding year due to the income deficit and the writing off of an unamortized discount on funded debt.

The company, as is generally known, owns valuable properties in the Grand Central Terminal zone in New

Table II—New York Central—Selected Freight Operating Statistics, 1932 and 1929 Compared

	New York Central			C. C. C. & St. L			Michigan Central		
	1932	1929	+Inc. or −Dec.	1932	1929	+Inc. or −Dec.	1932	1929	+Inc. or −Dec.
Gross ton-miles (thousands)	35,430,766	58,812,708	−39.8	12,434,663	18,938,255	−34.3	7,018,166	13,327,411	−47.3
Net ton-miles (thousands)	13,965,422	24,806,298	−43.7	5,506,911	8,537,927	−35.5	2,272,531	4,654,391	−51.2
Per cent loaded to total car-miles	59.7	61.3	−2.6	59.9	60.8	−1.4	59.8	61.2	−2.3
Freight cars per train	60.2	63.7	−5.4	47.3	53.0	−10.7	49.5	58.4	−15.2
Gross tons per train	2,193	2,348	−6.6	1,807	2,042	−11.5	1,699	1,977	−14.1
Net tons per train	865	990	−12.6	800	920	−13.0	550	690	−20.3
Train speed, miles per train-hr	15.4	13.3	+15.8	17.1	14.2	+20.5	18.2	16.1	+13.1
Gross ton-miles per train-hour	33,723	31,282	+7.8	30,898	28,949	+6.7	30,856	31,911	−3.3
Net ton-miles per train-hour	13,292	13,194	+0.8	13,684	13,051	+4.9	9,991	11,144	−10.3
Lb. coal per 1,000 gross ton-miles	102	106	−3.7	115	116	−0.8	119	110	+8.2
Per cent freight locos. unserviceable	51.5	25.6	+101.2	42.4	28.1	+50.9	38.8	17.0	+128.2
Per cent freight cars unserviceable	17.1	4.8	+256.3	14.5	4.8	+202.1	7.9	5.0	+58.0

York, the air rights of which are leased for hotels, apartment houses and office buildings, the owners of some of which have found difficulty in paying their ground rents. In several such cases the railroad has made arrangements for deferred payments, with interest. The necessity for this action has, temporarily, curtailed income but the great value of the properties, it would appear, provides ample security for ultimate payment.

Comparative revenues and expenses of the New York Central and leased lines in 1932 and 1929 are given in Table I. In Table II are contrasted salient statistics of operating performance for the three leading component parts of the system. The decrease in gross and net tons per train, the inevitable result of the maintenance of scheduled services in a period of traffic decline, will be noted, as will also the noteworthy increase in the average speed of trains, which was accomplished on two out of three of the lines with an actual increase in fuel efficiency.

The rise in the ratio of unserviceable equipment to total equipment on line is suggestive of the tremendous reserve of potential employment which the railways afford and which the public and their governments can call into action at any time simply by taking steps to see to it that the railways secure a fair share of the nation's traffic.

The New York Central in 1932 borrowed $2,000,000 from the Railroad Credit Corporation and $20,499,000 from the Reconstruction Finance Corporation, a substantial share of the latter to enable it to pursue its great West Side improvement project in New York, which involves the removal of tracks from the streets, placing them on an elevated structure on a private right of way through a congested warehousing and industrial district; and, in addition, the construction of a huge new freight terminal to take the place of the ancient structure at St. John's Park in lower Manhattan. The company also pushed its program of air-conditioning its passenger equipment and installed 200 pre-cooling machines at its principal passenger terminals.

The year 1932, it is evident, was the most disappointing in the history of the company as now constituted. It may be hoped that it will bear that doubtful distinction for many years to come, since already carloadings on the system have passed those of a year ago which augurs well for a much more prosperous period for the remainder of the year.

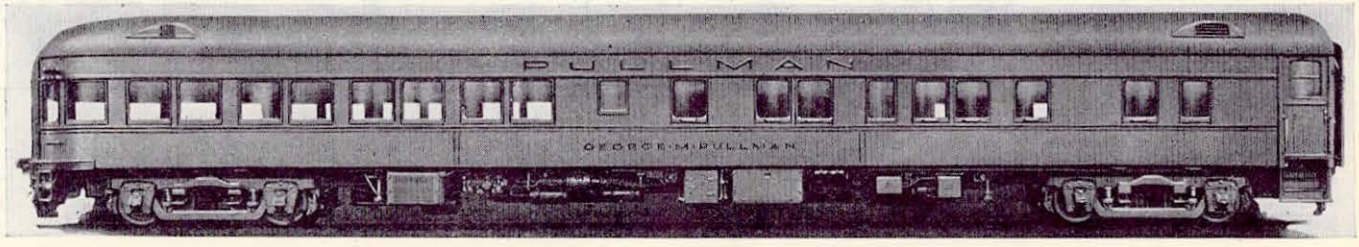
Pullman All-Aluminum Compartment, Observation-Lounge Car

New construction saves almost 50 per cent in weight without sacrificing strength or safety

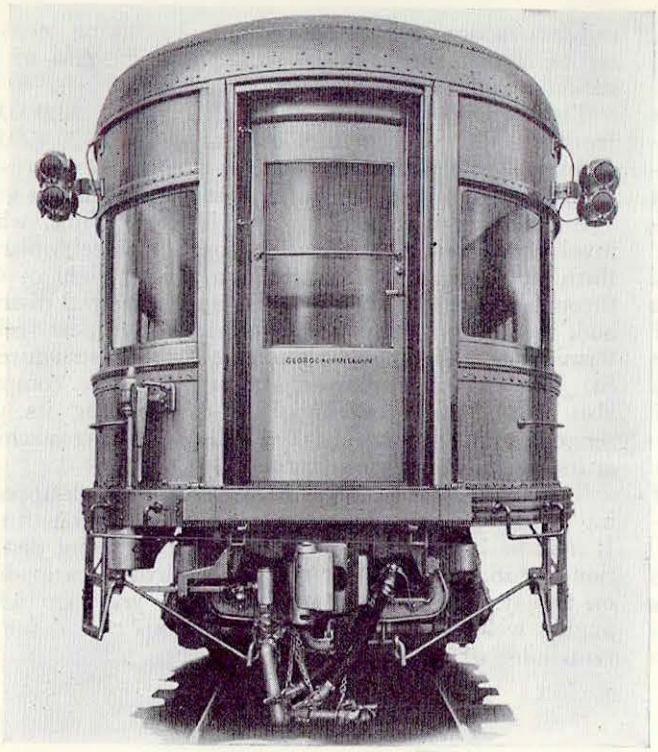
OF the two all-aluminum cars which feature the Pullman exhibit at the Century of Progress Exposition, Chicago, the observation-coach was described in the *Railway Age* issue of June 3. The compartment, observation-lounge car, exhibited by the Pullman Company, is slightly over 84 ft. long and weighs, when fully supplied with air-conditioning and other special equipment, 96,980 lb. This may be compared with a weight of about 180,000 lb. for an equivalent car similarly equipped and embodying conventional steel construction. The car is designed for regular main-line service, in which its strikingly light weight is expected to contribute to higher train speeds (or lighter locomotives required for the same speed), reduced maintenance of track and equipment and other economies. Of more or less standard proportions and general room arrangement, the new car, called the George M. Pullman, is designed with a consistent beauty of line and finish, inside and out. Maximum passenger appeal is assured by the provision of all modern travel conveniences and comforts, including filtered and properly conditioned air during all seasons, and several innovations in design calculated to exclude dust and dirt, minimize noise and vibration, etc. In spite of its light weight, the car structure is designed without any sacrifice of safety, being more than adequate to meet the American Railway Association and the United States Railway Mail Service strength requirements.

General Dimensions and Weights of the Pullman Aluminum Observation-Room Car

Length over body end sills	79 ft. 1 in.
Length between truck centers	59 ft. 6 in.
Length over pulling face of couplers	84 ft. 3 in.
Width overall at eaves	9 ft. $11^{9}/_{32}$ in.
Height, top of rail to bottom of side sills	3 ft. $7^{5}/_{8}$ in.
Height, track to top of roof at center	14 ft. $^{5}/_{64}$ in.
Height, floor to headlining, center of car	9 ft. $6^{3}/_{8}$ in.
Distance, end sill to buffer beam (vestibule end)	2 ft. 9 in.
Wheel base	9 ft. 0 in.
Weights: Of car body, including complete equipment	69,980 lb.
Of trucks, including 2,700 lb. mechanical drive	27,000 lb.
Total	96,980 lb.



The All-Aluminum Compartment, Observation-Lounge Car



The Rounded Rear End of the Car

As explained in the preceding article, all parts of the car are constructed of strong aluminum alloys, with the exception of steel used in wheels, axles, springs, brake shoes and all friction parts subject to wear. Even the insulating material used is a crumpled aluminum foil. The substantial, well-braced continuous center sill is of the "fish-belly" type, as differentiated from the straight-line center sill used in the Pullman aluminum observation-coach.

The same general fabricating methods are employed as in the coach, full advantage being taken of the interlocking construction possible with extruded sections and resulting in a car body which is said to have even less deflection under load than an equivalent steel structure.

Latest Developments in Air-Conditioning

Rubber inserts are employed at couplers and under side bearings, and a special front vestibule construction, in conjunction with a rubber-type draft gear and buffing device, is designed largely to eliminate noise occasioned by the slack running in and out. The air-conditioning equipment installed is the latest improved system developed by the Pullman Car & Manufacturing Corp. and providing automatic thermostatic control of temperature and humidity conditions in accordance with individual room requirements.

Trucks Have One-Piece Cast-Aluminum Frames

One of the notable features of the new car is the provision of Commonwealth-type four-wheel trucks, designed by the General Steel Castings Corporation and having one-piece aluminum frames cast at the Cleveland (Ohio) plant of the Aluminum Company of America. This four-wheel truck, made possible by the reduced weight of the car, weighs only 13,500 lb., including the mechanical drive. It is especially designed for easy riding and has been subjected to extensive tests and X-ray examination to make sure that no flaws or defects are present in the frame structure.

Decoration and Equipment

In developing the "Contemporary" architectural and decorative treatment of the George M. Pullman, the Pullman Company employed Samuel A. Marx, Chicago, as consulting architect and decorator. The exterior of the car is aluminum of scratch-brush finish. The only other color is that of gilded brass used for the names and in longitudinal stripes along the body of the car. Inside the car, natural aluminum is the dominant decorative factor, and every tone in furniture, wall decoration, ornamental design and upholstery, is complementary to the silvery sheen of this metal.

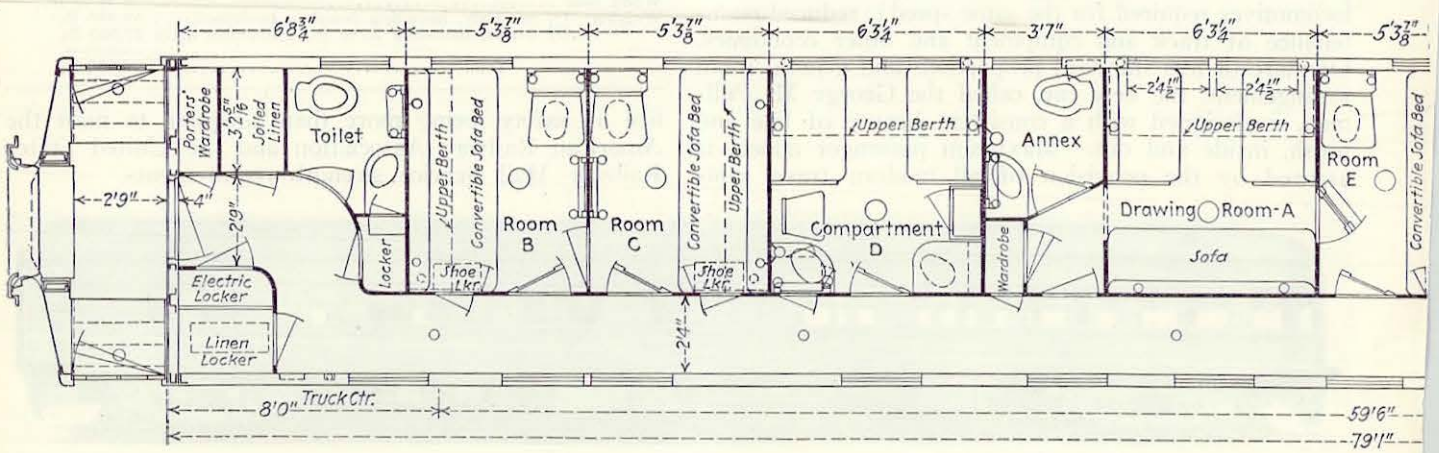
The decorative scheme in the 33-ft. observation room is simple yet dignified. The bases of the walls are brushed natural aluminum, while the upper part of the walls and ceiling is painted in cream, with a slight tan tinge. Extruded straight-line and Grecian aluminum moldings top the walls. Above these moldings is a continuous light trough in which electric bulbs, by the aid of mirrors, project their light to the ceiling. The entire room has this indirect lighting system; there are no ceiling fixtures, wall lamps, or table lamps. The same system of lighting is also utilized in the passageways.

The floor of the observation-lounge is covered, as is the hallway, with a carpet in soft brown with a pattern of silver wreaths slightly toned with green.

The window shades, another striking novelty, are in fabric of shades varying from light tan to dark brown, the design simulating a Venetian blind.

Fixtures and Furniture Especially Designed for the Car

All fixtures, in fact, everything in the car, were specially designed and built, including the furniture in the



Floor Plan of the Pullman All-Aluminu

observation room. This is of a beautiful Italian ash burl. In what normally would be the "sun parlor" are four large comfortable chairs of the barrel type and a sofa of distinctive pattern. The latter faces the rear door and at its back is built in a writing table, which is served by a small chair. In the main lounge are three sofas, six chairs and three tables. Some of these pieces are upholstered in a pattern of brown interlaced leaves on a cream background, while the pattern in the others is of silver wheels upon green.

The observation room also contains what for a better name might be called a "dinette," consisting of two spaces equivalent to standard Pullman sections in each of which is a black-topped table with four chairs. There is actually no separation between the dinette and the lounge itself, although they are nominally separated by an attractive open-work aluminum partition. The adjoining buffet is efficient and compact. The walls and ceiling are of aluminum. The grille and oven, sink and drainboard are of monel metal, all metals being susceptible to easy and thorough cleaning.

Sleeping Accommodations

The forward end of the car is taken up with sleeping accommodations, their doors being of the Italian ash with inlaid designs in ebony.

The first of the sleeping apartments, the yellow room, is a double bedroom the walls of which (with the exception of the brown bases) are in light gray with the ceiling in an even lighter tint, and the flooring is black rubber tile with a border of aluminum. The seat and back of the convertible sofa-bed are upholstered in canary yellow, ornamented with white stars; the headrest is of the same pattern with the addition of a circular wreath enclosing an eagle with spread wings above the initial P.

The drawing room, which is en suite with the first bedroom, also carries the yellow scheme. The room has upper and lower berths and a sofa. The seat ends of the section, however, differ from the familiar design, straight lines replacing curves and horizontal aluminum strips ornamenting the Italian ash ends. One reading light is placed over the center of each section seat, while the sofa has two, as in the bedroom.

The compartment, the next room on the corridor, likewise has the ornamented seat ends, and the reading lights centered over each seat. The color motif is blue, the walls and ceiling and the upper berth front of clear, light complementary shades, and the upholstery in ultramarine carrying the white star and eagle pattern.

The second bedroom, the green room, has clear yellow walls and ceiling, and a similar shade on the upper

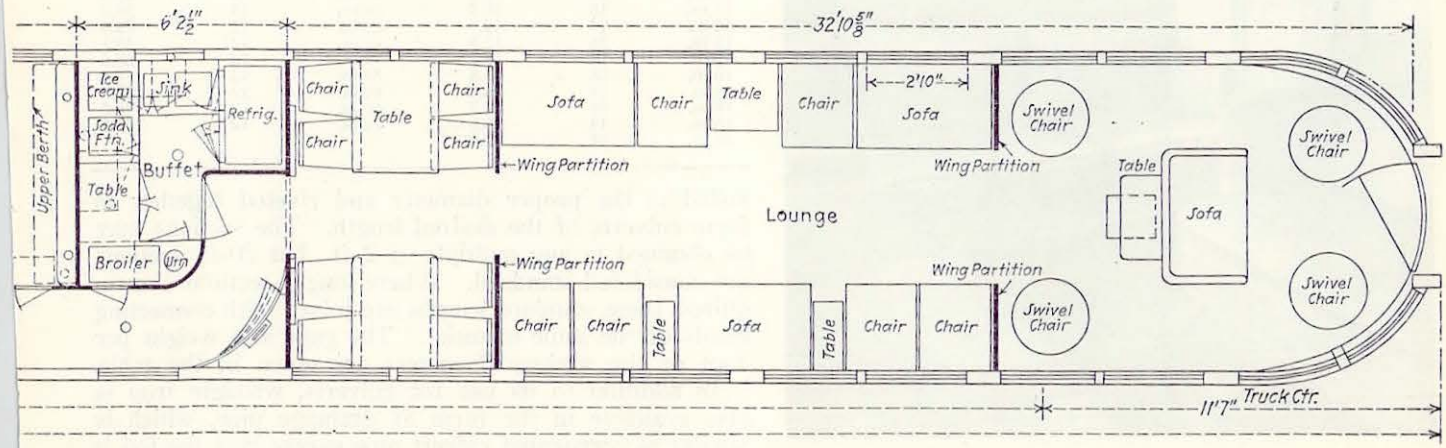
The Blue Compartment with Ornamented Seat Ends and Upholstery Carrying the White Star and Eagle Pattern

berth. The upholstery is green with the same pattern in white. The third, and last bedroom, the brown room, has light brown walls, ceiling and berth front, and the upholstery is seal brown with white pattern.

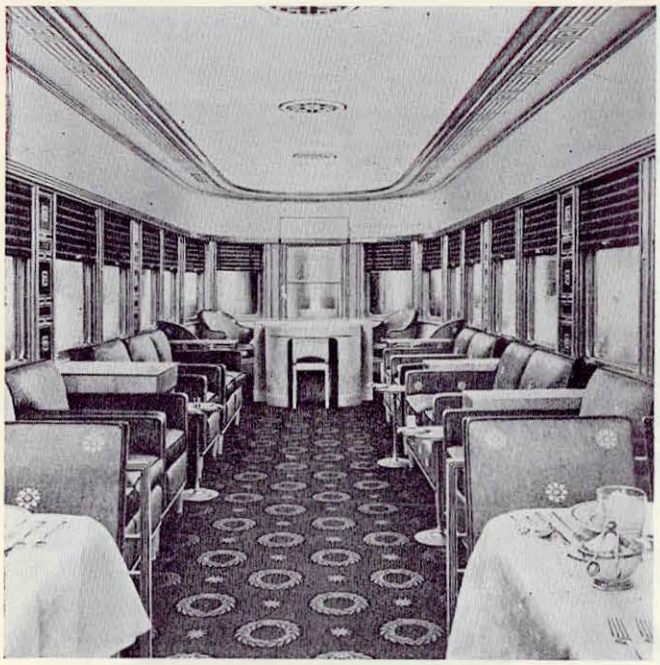
Specially-Designed Lighting Fixtures

The lighting fixtures of these rooms are of special design, all in brushed aluminum. In the ceiling is a circular grille through which the room is air conditioned, and centered in the grille is the light enclosed in a slightly projecting bowl. Novelty and efficacy constitute the keynote of the remaining lighting fixtures. The usual window corner fixtures have been replaced by longitudinal lamps above sections and sofas with a movable shade, enabling the reader to adjust illumination to taste, as the light comes over the shoulder. The same type of lamp has been placed perpendicularly on each side of the toilet mirrors, the light reflecting into the glass.

All the rooms have folding washstands of monel metal, and other toilet conveniences, and, another novelty, an



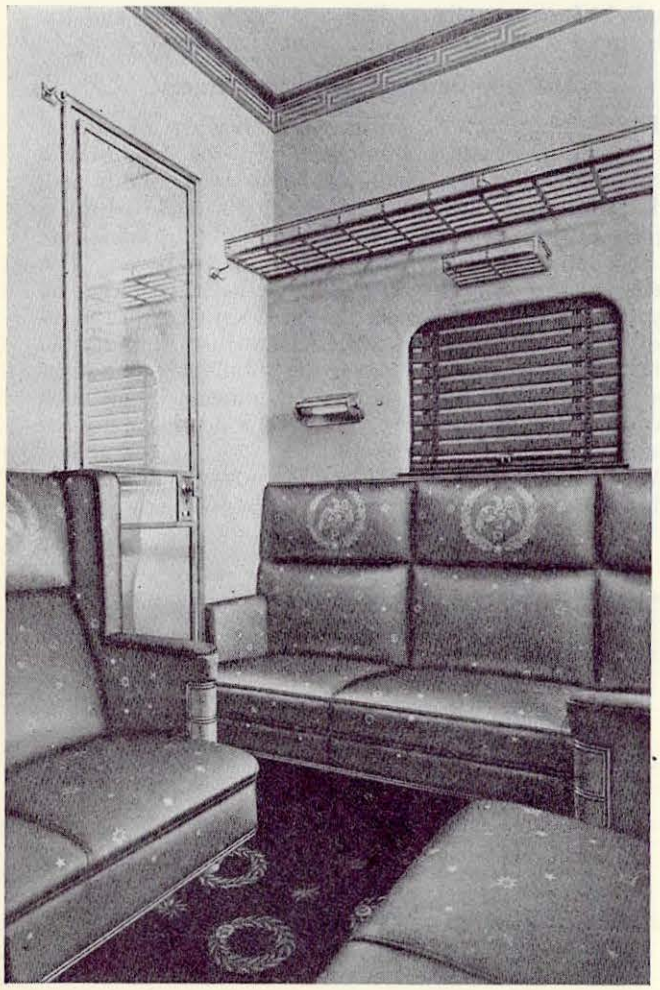
ompartment, Observation-Lounge Car



Interior Arrangement of the 33-Ft. Observation-Lounge

exhaust grille set in the ceiling to carry off the smoke.

There is innovation in design in all the accessories, door-knobs, faucets, handles, grab-irons, and many other little appurtenances that go to the making of a Pullman car and contribute to comforts of Pullman passengers.

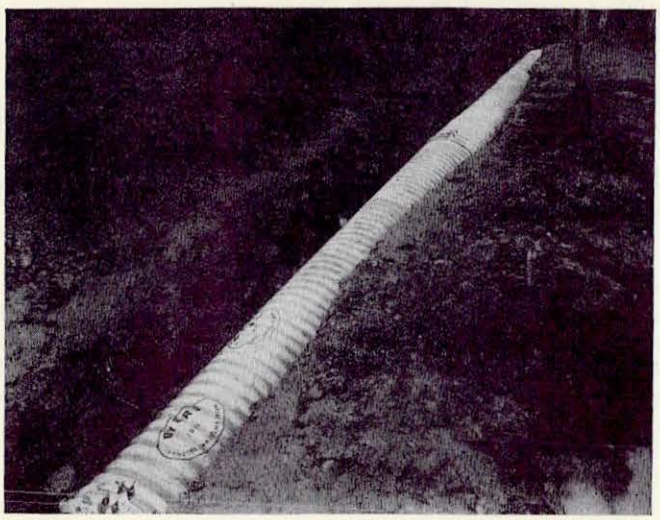


View of the Drawing Room Attractively Decorated in Canary Yellow

Wrought Iron Culverts

THE A. M. Byers Company, Pittsburgh, Pa., is now manufacturing corrugated culverts of genuine wrought iron. Although it is said that in 1899 James H. Watson used wrought iron in the manufacture of the first corrugated culvert and that about 85 per cent of the wrought iron culverts installed by Mr. Watson, although not galvanized, were still in service in 1926, wrought iron has not been employed to any extent in the manufacture of culverts up to the present time because of practical limitations on quantity production. However, the development by the A. M. Byers Company of a process for producing wrought iron in quantities comparable with steel has made possible its application to the manufacture of culverts.

In the manufacture of corrugated wrought iron culverts, the sheets are first rolled to a thickness of 12 to



An Installation of a Byers Genuine Wrought Iron Pipe Culvert

16 gage, according to the size of the pipe to be formed, and are then galvanized on both sides, a minimum coating of two ounces of zinc per square foot being applied. These sheets, which have a width of about 24 in., with an allowance for riveting, are given corrugations 5/8 in. deep and 2½ in. center to center. The sheets are then rolled to the proper diameter and riveted together to form culverts of the desired length. The sections may be obtained in any multiple of 2 ft., but 20-ft. sections are considered standard. Where longer sections are required, these standard lengths are joined with connecting bands of the same material. The gage and weight per foot of the various diameters are given in the table.

Dimensions of Standard Wrought Iron Culverts

Diameter	Gage	Weight per Foot	Diameter	Gage	Weight per Foot
8 in.	16	7.3	24 in.	14	25.2
10 in.	16	9.0	30 in.	14	30.9
10 in.	14	11.0	30 in.	12	43.3
12 in.	16	10.5	36 in.	14	38.0
12 in.	14	12.9	36 in.	12	51.0
15 in.	16	12.9	42 in.	12	59.5
15 in.	14	15.7	48 in.	12	68.0
16 in.	16	13.8	54 in.	12	77.8
16 in.	14	16.8	60 in.	12	85.0
18 in.	16	15.3	66 in.	12	96.0
18 in.	14	18.8	72 in.	12	106.0
21 in.	14	22.0			

In addition to its use for culverts, wrought iron is also available in the form of drainage pipe, which is similar to corrugated culvert pipe except that the top is perforated to allow for the seepage of soil drainage.

Railroad Bill Passed by House

Labor amendments approved after White House conference— "Company" unions accorded representation

WASHINGTON, D. C.

THE administration's railroad bill rewritten and somewhat modified by the House committee on interstate and foreign commerce after its passage by the Senate on May 27, was passed by the House on June 5 without a record vote and sent to conference. The effect of the bill was substantially that of the form in which it was reported by the Senate committee, and most of the amendments inserted by the Senate itself were eliminated by the House and left for the conferees to deal with. Nearly a score of amendments were offered in the House during the debate on the bill on June 3, but only one was adopted, although this was the first of the important administration bills brought forward this session in the House under an "open" rule permitting amendments from the floor which had not been approved by the committee.

As in the Senate most of the debate centered around the emergency title of the bill, providing for the appointment of a Federal Co-ordinator of Transportation, with powers limited by restrictions placed in the bill by the Senate committee, including the amendments proposed by the railway labor organizations, which have changed their position from that of bitterly opposing the bill to one approaching advocacy of it. The railroad executives, although disappointed by several of the Senate committee amendments, still had an interest in the bill because it carries repeal of the recapture clause and a new rate-making rule and presents some possibilities of economies that may be effected without reducing the number or compensation of employees, and because it directs the co-ordinator to prepare a plan for more permanent legislation to improve conditions of transportation regulation.

Many members of the House committee were dissatisfied with the Senate labor amendments, including the one limiting the economies to be effected under its authority to those that may be accomplished without reducing the number of employees on any railroad below the number on the May payrolls, except as to removals by death, normal retirements, or resignations, not exceeding 5 per cent, but voted on June 1 to accept it, with some verbal revisions, after the question had been put up to the President at a White House conference on May 31. The committee did make one important change, however, by inserting a provision for the appointment of two sets of labor committees for each region, one selected by the "standard" railroad labor organizations, who represent about 57 per cent of the employees, and another selected by "such other railroad labor organizations as may be duly designated and authorized to represent employees in accordance with the requirements of the railway labor act," including the so-called "company unions" or other local organizations. The bill as reported by the House committee and as passed also includes the provision for compensation to employees for property losses and expenses imposed upon them by reason of transfers of work from one locality to another incident to carrying out the purposes of the bill.

President Roosevelt, who had accepted the provision for "freezing" the employment situation while the bill was before the Senate committee, after he had been told the bill could not be passed without it, took the same position at the conference on May 31, which was attended not only by the committee which had drafted the railroad bill, Secretary Roper, Commissioner Eastman, Dr. Splawn, Senator Dill and Representative Rayburn, but also by A. F. Whitney, chairman, George Harrison, vice-chairman, and Donald R. Richberg, counsel, of the Railway Labor Executives' Association. The railroad executives' "contact committee" had discussed the subject with the President at an earlier conference, after the Senate committee had reported the bill.

Labor Amendments Are Accepted With Reluctance By House Committee

The House committee had postponed its own executive consideration of the bill until after the Senate had passed it. Chairman Rayburn, in his opening statement on the bill in the House, said that "as some of us were not very keen to go up against some of the provisions that we knew were going to be presented and probably adopted, we waited the action of the Senate." He also said that the committee had in the main accepted the labor amendments adopted by the Senate after making it "definite that the 43 per cent of railroad employees in the country who are not members of the standard organizations would not be put out and denied representation in conferences with the co-ordinator," and that this provision, as he understood it, "was acceptable to the representatives of labor."

In outlining what Commissioner Eastman had thought might be accomplished under the bill he added, "or at least he thought before it was amended, that it might be accomplished," and after discussing the co-ordinator part of the bill for which he said he was "not so keen" himself, and turning to the recapture and holding company provisions of the bill, he said, "I would like to pass to something that I know a great deal more about and am somewhat more interested in."

Many of the amendments offered in the House represented efforts to restore some of the Senate amendments eliminated by the House committee. No effort was made to eliminate the principal labor provisions and the attendance was small throughout most of the consideration of the amendments. General debate on the bill had been had on June 2 and on June 3 the various amendments were taken up, but after they had been disposed of and the bill was on the verge of passage Representative Collins, of Mississippi, made the point of no quorum and it was found that only 165 Representatives were present, so an adjournment was taken until Monday.

Bill Misunderstood

There was a great deal of misunderstanding of the purposes of the bill, partly the result of impressions created by press reports written while both the co-ordinator plan and the Prince plan for a general consolidation of the railroads into seven systems were being considered by the President's advisers. Moreover, copies of the committee bill were not available until after the debate had begun. Many Representatives, as many Senators had the week before, had the idea that the purpose of the bill was to authorize the co-ordinator to make wholesale consolidations of the railroads, although Chairman Rayburn kept insisting that "the co-ordinator has

nothing whatever to do with consolidation" and that that subject is still within the jurisdiction of the Interstate Commerce Commission as it has been since 1920. He also said the co-ordinator would have no power to abandon a line.

Representative James S. Parker, of New York, former chairman of the House committee on interstate and foreign commerce, who shared with Mr. Rayburn the leadership of the bill in the House, said the most valuable thing in the emergency part of the bill is the section that instructs the co-ordinator to make a study and report recommendations for future legislation. He said he hoped that savings could be effected but could give no estimate of how much and he devoted much of his time to urging the permanent legislation part of the bill.

A proposal by Representative Sabath, of Illinois, to eliminate the provision for repeal of the recapture and rate-making rule was rejected by a vote of 80 to 33.

An amendment offered by Representative Martin, of Colorado, to strike out the provision allowing a 5 per cent reduction in employment by normal retirements was defeated, 60 to 34. He said it would enable the railroads to reduce their forces by 50,000 in a year.

An amendment proposed by Representative Beck, of Pennsylvania, to strike out the language in Section 5 giving the co-ordinator power to issue and enforce orders was defeated without a record vote.

Many Senate Amendments Eliminated

Most of the amendments adopted by the Senate during the debate were eliminated by the House committee. These included the Norris amendment to the rate-making rule, intended to provide for the use as a rate base of the prudent investment less depreciation or the investment necessary to reproduce the property, whichever happened to be the lower; the Trammell amendment to prevent rate increases except upon specific authorization by the Interstate Commerce Commission after 60 days' notice; and the Long amendments, providing that no routes now existing shall be eliminated except with the consent of all participating lines or upon order of the co-ordinator, and that state laws and orders of state commissions shall remain in effect unless the orders of the co-ordinator "effecting them" relate to interstate commerce. The committee also eliminated a Senate provision including subsidiary or affiliated carriers, which was intended to bring bus or truck subsidiaries, express companies, etc., within the terms of the bill. Another elimination omits the requirement that the co-ordinator shall approve the rules under which the regional co-ordinating committees operate.

The committee also omitted the provision that nothing in the bill shall be construed to require any employee or officer to render service without his consent and the provision for a study of "labor relations" by the co-ordinator, but an amendment to restore this provision was adopted by a vote of 66 to 39. This was the only change made by the House in the bill as reported by its committee. It increased the assessment upon the railway companies for the fund to defray the expenses of the co-ordinator's organization from $1 to $2 a mile.

In its outline of the purposes of the emergency part of the bill Title I, the House committee said in its report:

"At present the railroads in competition among themselves find it next to impossible to realize some of the economies that are desired; moreover they are no doubt retarded from making agreements eliminating some competition by reason of the prohibitions contained in the so-called 'anti-trust laws.' This bill places upon railway managements the responsibility to initiate economies that are in the public interest. This will be done by the railway managements acting through regional committees selected by the carriers themselves. Where the regional committees set up by the carriers cannot act by reason of some legal or other obstacle, or refuse to act, the co-ordinator is authorized and directed to issue and enforce an order giving appropriate directions to the carriers in order that the purposes of the legislation may be accomplished. The bill provides for suspending federal and state laws and orders made thereunder (except those relating to safety) so far as necessary to permit obedience to any such order of the co-ordinator."

The committee had also included as an amendment, which was included in the bill as it passed the House, an amendment to the interstate commerce act authorizing the Interstate Commerce Commission, upon application, to certify its approval of agreements for consolidation, acquisition, or control by or between cable and/or telegraph companies or the companies controlling the same with like force and effect and upon like terms and conditions as are provided in the existing law for telephone companies.

A much more comprehensive discussion was included of the proposed amendments to the rate-making, recapture, consolidation and valuation sections of the interstate commerce act in Title II of the bill, which were originally reported by the House committee last year.

Concerning The Co-ordinator

Mr. Rayburn said during the debate that "no one knows at this time who is going to be the co-ordinator, unless it is the President of the United States. It has been stated in various press reports that Commissioner Eastman will be furloughed from the Interstate Commerce Commission and made the co-ordinator. I doubt if his appointment would be displeasing to anybody, because he is a man of outstanding ability and has the confidence of the shippers and the public in general, as well as labor and the railroads, and as few men in his position over the years have had." At another point he said "it is generally understood that Mr. Eastman will be the co-ordinator."

When Representative Beck attempted to eliminate the authorization to the co-ordinator to issue and enforce orders, saying he wanted no more "dictators," Mr. Rayburn said "the question that must be determined is whether or not you are going to have a co-ordinator. If you are going to have a co-ordinator in this emergency—and it seems that the shippers, the railroad owners, and, with the amendments in this bill, labor, are willing to have a co-ordinator—if you are going to have a co-ordinator with power to do something in this emergency that will relieve the situation, you have got to give him the power to act and the power to put into effect orders and to enforce such orders in a legal way. If the House or the committee determines it does not want a co-ordinator, that is one thing. I am not so keen for it myself." "I think the public is not injured by this legislation. I think under the advice of the co-ordinator, in all probability, there will be some things done in transportation that ought to have been done years ago, and on his advice something will be done. Certainly I believe the co-ordinator, with his advice and with his standing is going to be able to bring about some economies, will stop some waste and, in some degrees, at least, will point the way to the time when the 100,000,000 people of the country may receive some benefit from it."

Representative Huddleston said that the representatives of four international labor organizations had called to see him and "said they wanted the bill passed; that

(*Continued on page 833*)

"Share-Expense" Travel a Racket

Less than 40 per cent of the passengers reach their destinations at the contracted rates

By Harry A. Koach
Assistant Chairman, Railway Ticket Protective Bureau, Chicago

AN investigation of "share-expense" travel bureaus that is being made by the Railway Ticket Protective Bureau shows that less than 40 per cent of the passengers availing themselves of this manner of travel arrive at their destinations at the agreed or contract rates. The "share-expense" mode of making automobile trips, once the device of thrifty motor car owners, now presents a wide-open invitation to racketeers who are not slow in grasping the opportunity. Shrewd operators, who see the unlimited opportunities in this field, have "chiseled" into the business built up by travel booking agencies and have developed what always was a haphazard scheme into a smooth working racket which has increased at an alarming rate during the past two years.

Efforts to combat the handling of pay passengers and "share-expense" passengers in private automobiles are resulting from a recommendation adopted by the Western, Transcontinental, Southwestern, Southeastern, Trunk Line and Central passenger associations on September 21, 1932, directing the Railway Ticket Protective Bureau to outline a tentative plan of procedure. The object of the plan is to secure city, state and federal legislation which will protect travelers from illegitimate operators by forcing all operators to register and provide bonds. Since there are at least 200 cities where it is necessary that action be taken as soon as possible, the Railway Ticket Protective Bureau has proceeded, first, with tests in such cities as St. Louis, Mo., Cleveland, Ohio, Kansas City, Mo., Atlanta, Ga., and Pittsburgh, Pa., deferring action in such cities as Chicago and New York until sufficient progress has been made elsewhere to overcome difficulties that will be encountered in these cities.

Three Classes of Operators

In considering this problem, the operators have been divided into three general classes: (1) Tour agencies, owning or controlling groups of cars, which operate with a certain degree of regularity as to schedules and cities served and which claim to protect the passenger by liability insurance and performance of contract through to destination. These agencies obtain their patronage through advertisements in the classified columns of newspapers in the larger commercial centers, by payment of commissions to porters in hotels or through other channels where passengers may be secured; (2) individual operators, termed "wildcatters," including private car owners who occasionally pick up a load of passengers for any destination. This class also obtains patronage through tour bureaus, porters and advertising. The "wildcatter" is a particularly irresponsible operator and is the cause of many complaints of mistreatment of passengers in various ways; (3) the "share-expense" driver who may simply be making a trip on his own account to a particular point and desires to reduce his own expenses by securing other travelers.

The investigation shows that this type of travel is increasing at a rapid rate and that so long as the frugal traveler is willing to co-operate with the "share-expense" operator, the racket is likely to thrive. It cannot survive unless the passenger, or victim—for that is really what he is—connives with the drivers and operators to evade the laws of the different states through which they travel and, for the sake of economy, is willing to take oath that he is a "friend" of the driver and is merely riding with him for pleasure, etc. This fact is substantiated by cases brought to light, among which is the Olympic Travel Club which was organized to evade the California and other state laws. In this organization, travelers are charged "membership dues" based on destination; for example, Los Angeles, Cal., to Phoenix, Ariz., $6; to El Paso, Tex., $11, etc., and are furnished with membership cards which are valid for the ride only.

Travel Club Investigated

Investigation of the Olympic Travel Club also disclosed an instance in which a driver was arrested and released because of the "membership" idea. The report reads as follows:

"Referring to the arrest of Charles Maddox of Chicago for operating an auto for passenger service without a public service permit, the arrest being made by the Missouri State Highway Patrol at Nevada, Mo., on October 27, 1932. Information concerning the arrest of Maddox got to Chicago quickly in some way as Frank Allen, signing his name as Secretary of the Olympic Travel Club, Chicago branch, wrote a letter on the morning of October 27 to Maddox, sending it air mail, special delivery, care of the sheriff, and addressing Maddox as 'Dear Fellow Member.' The contents follow: 'The writer was informed today of your detention on suspicion of hauling passengers for hire without a license. Of course, we realize nothing could be farther from the truth than that. I am enclosing herewith the membership certificates, from our files of members, for Lupe Salazar and Rabelle Smith, which I believe will completely exonerate you on presentation of these certificates to the authorities. I would suggest that you explain the fact that the Olympic Travel Club is incorporated in the state of California and that you acted entirely within your rights when you accepted guest passengers to ride with you. The passengers in your car did not pay you one cent, so I fail to see the slightest reason for detaining you further'."

Bureaus Cannot Perform Reliable Service

It is impossible for alleged travel bureaus to perform a reliable and dependable service. Car owners are solicited through newspaper advertisements and no effort is made to investigate the character of the owners. As a result, the business includes many professional drivers who abandon their passengers before they reach their destination. These unscrupulous drivers violate state laws by contending that since their travel is interstate and not intrastate, they are not subject to any state laws or regulations.

Usually the "travel club" or travel bureau is simply an individual acting as a broker to bring the prospective passenger and the automobile driver together. He collects a fee for the service but ordinarily has no financial interest in the automobile operator and assumes no financial

responsibility. The passenger, therefore, travels at his own risk.

Responsibility for delivery of the passenger at his destination or for his life and luggage while in transit is only vaguely and unreliably defined in many instances. Some travel bureaus say they will accept liability, while others frankly admit that they guarantee nothing except to start the passenger on his way for a fixed sum. In spite of many warnings, passengers continue to use this method of travel. One large daily paper heads all such advertisements with the following warning: "Individuals—both readers and advertisers are urged to exercise caution in arranging automobile transportation with other individuals. References should be carefully investigated."

Hotels Receive a Commission

While the bureaus rely upon advertisements to a large extent, they also enlist the aid of hotels in securing passengers, paying the hotels a commission. The manner in which this is done is illustrated by a letter of instructions sent to hotels by a bureau in Birmingham, Ala.

"The operation of this service is to create a bureau for the purpose of making a connection for anyone of good reputation and character to obtain passage or passengers on a "share-expense" basis to all parts of the United States and Canada. By keeping a permanent ad in the newspapers over the country, we are in position to offer through the hotels in which we install this service—a 24-hr. service for this purpose. This will accomplish two things—first, an advertisement for the hotels which have our service and a continuous arrival of guests from other cities where our service is used, as one hotel will send these travelers naturally to the associate hotel in the city they are traveling to.

"You are to charge each person who wishes to use our service one dollar as a registration fee, this money to be refunded in case the trip is arranged or passage obtained. If the person requesting transportation or passengers fails to take the passenger obtained for him or the person requesting transportation fails to take the passage you have arranged for him, he or she forfeits the deposit.

"For this service of arranging transportation or obtaining share-expense passengers for your client, you are to charge 20 per cent of the amount of money the owner of the car obtains from each passenger. You are to refund or credit the amount of money you have on deposit from these people towards the 20 per cent you charge. For example:

"Mr. Jones deposits $1 — wants passengers
Mr. Smith " $1 — wants passage
Mr. Black " $1 — wants passage

"You obtain two passengers for Mr. Jones to Los Angeles. He charges each of them $20, making a total of $40. You are to collect 20 per cent, or $8. You have already on deposit from these three $3, so you collect $5 more, issuing a receipt to Mr. Jones for the balance.

"You are to make a report to us each Monday morning of all business handled the previous week, enclosing your check for the amount of money collected. We are in return to make a return to you each two weeks at the rate of $25 a month, or 25 per cent of the money you collect."

Communities Fighting the "Racket"

The investigation also shows that efforts are being made by communities to eliminate the evils of "share-expense" travel. An intensive drive to eliminate the operation of unlicensed passenger carriers has been started by representatives of the public service commissions of Kansas and Missouri. Drivers are being arrested and charged with operating motor coaches without a license. On July 11, 1932, one operator was found guilty by a jury in Springfield, Mo., and fined $50 and costs. On the same day, another operator was arrested in Kansas City, Kan., as he was taking a load of passengers from Kansas City to Denver, Colo. He was released upon his promise to go to Denver without his passengers, but on the following morning was re-arrested with a load for Denver and fined $100 and $50 court costs.

Freight Car Loading

WASHINGTON, D. C.

REVENUE freight car loading in the week ended May 27 amounted to 541,309 cars, an increase of 9,691 cars over the total for the preceding week and an increase of 20,060 cars as compared with the corresponding week of last year. This makes the third successive week in which loading has exceeded that of the corresponding week of last year. All commodity classifications except l. c. l. merchandise and livestock showed increases as compared with last year and all but grain and grain products and livestock showed gains as compared with the preceding week. The summary, as compiled by the Car Service Division of the American Railway Association, follows:

Revenue Freight Car Loading
Week Ended Saturday, May 27, 1933

Districts	1933	1932	1931
Eastern	128,214	122,144	158,870
Allegheny	102,273	101,881	140,769
Pocahontas	35,349	32,287	43,504
Southern	81,787	76,865	110,456
Northwestern	69,020	62,116	94,298
Central Western	76,922	81,162	102,999
Southwestern	47,744	44,794	60,353
Total Western Districts	193,686	188,072	257,650
Total All Roads	541,309	521,249	711,249
Commodities			
Grain and Grain Products	34,339	32,008	34,998
Live Stock	15,415	16,304	17,896
Coal	80,915	72,852	115,792
Coke	4,137	3,202	6,217
Forest Products	22,609	18,003	31,318
Ore	10,099	2,544	25,884
Mdse. L. C. L.	166,404	180,508	197,219
Miscellaneous	207,391	195,828	281,925
May 27	541,309	521,249	711,249
May 20	531,618	515,628	754,738
May 13	531,095	517,260	747,057
May 6	523,819	533,951	745,740
April 29	535,676	554,197	774,742
Cumulative total, 21 weeks	10,342,265	11,653,051	15,360,905

Car Loading in Canada

Car loadings in Canada for the week ended May 27 totaled 32,361 cars. This was a decrease from the previous week of 3,374 cars, or 9.4 per cent, but after adjustment for the holiday (May 24) and seasonal variations the index number declined by only a fraction of a point, or from 58.38 to 57.71.

	Total Cars Loaded	Total Cars Rec'd from Connections
Total for Canada:		
May 27, 1933	32,361	17,760
May 20, 1933	35,735	18,315
May 13, 1933	36,453	18,110
May 28, 1932	39,841	17,078
Cumulative Totals for Canada:		
May 27, 1933	705,468	364,913
May 28, 1932	870,236	444,193
May 23, 1931	1,007,233	594,498

A DEFICIT, AFTER INTEREST CHARGES AND EXCHANGE PREMIUMS, of £4,564,605 was reported by the New South Wales (Australia) Government Railways for the year ending June 30, 1932, as compared with a deficit of £4,421,620 for the previous fiscal year, ending June 30, 1931. The gross revenue decline of £204,719 in 1931-32, as compared with the previous year, was met with an operating expense reduction of £366,777 but the resultant increase of £162,058 in net revenues, and the decline of £270,865 in interest charges, were more than offset by the increase of £575,908 in exchange premiums on interest remitted to London. Thus the increased net deficit. While the loss in revenue is attributed, in the main, to the industrial depression the report also points out that during the first four months of the 1931-32 fiscal year there was, in New South Wales, neither effective regulation nor adequate taxation of the railway's highway competitors.

Designing Buildings for Fruit and Produce Terminals

A. R. E. A. committee discusses the design of the various facilities required in the handling of farm products

IN recent years railway engineering officers have devoted considerable attention to the design and construction of modern fruit and produce terminals. At the convention of the American Railway Engineering Association in 1932 the Committee on Yards and Terminals presented a report listing the various facilities necessary for a modern produce terminal, and discussing the operation, location, track layout and general features of design of such terminals, which report was abstracted in the October 22, 1932, issue of the *Railway Age*. At the March, 1933, convention, the Committee on Buildings of the A. R. E. A. presented a report dealing with the same subject, which differed from the previous report in that it was confined to a comprehensive study of the design and construction of the various buildings that are required at a modern fruit and produce terminal. This report is abstracted below.

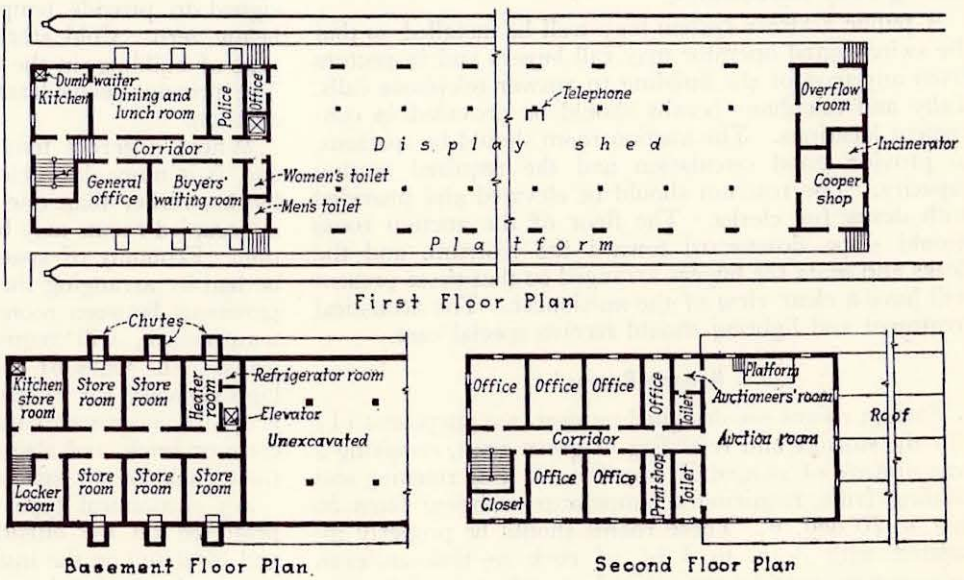
Modern fruit and produce terminal buildings should be designed and built for the service and convenience of both the shipper and the buyer. They should be provided with suitable facilities for receiving, housing, storing and displaying perishable farm and garden products, and for the proper and prompt handling of shipments of fruit, vegetables, and in some cases, butter, cheese, eggs and poultry. Dressed meats, groceries and canned goods may also be handled. Either one large building housing all departments, or separate buildings, may be designed and constructed to fit the conditions required, depending on the amount of business done in that locality. The buildings must, of course, conform to the local building ordinances. Care must be taken to insure that future growth of business can be provided for economically when required.

The buildings may be of wood frame, mill or masonry construction. In wood frame construction, the first cost is usually less, but the maintenance and insurance are high with the result that in the end the saving is reduced. This type of structure should be omitted from consideration as unsuitable for permanence and fire risk. Mill-type construction, with masonry walls, wood columns, heavy timber floor beams and thick plank floors, although not fireproof, retards the progress of a fire and thus affords some measure of protection. Masonry construction, consisting of a steel or reinforced concrete frame, with walls, floors and roof of concrete or some other fireproof material, provides greater fire protection, lower insurance rates, durability, freedom from repairs and renewals, and is somewhat vermin-proof and more sanitary. Fire protection is desirable and is best provided by the installation of sprinkler systems or fire-hose lines, which will tend to lower the insurance rates.

Each of the various products may be handled in one or more independent produce buildings, forming a complete market in itself, with storage, display, sales and office facilities; or separate buildings may be provided as follows:

Office and stores
Display and private sales building
Warehouse, including cold storage
Auction and display building
Butter, cheese and egg building
Poultry platforms
Banana building
Incinerator plant
Cooper shop
Heating, refrigeration and icing plant

The individual building may vary from 70 ft. to 110 ft. in width, and should have a length suitable for the requirements of the business contemplated. The building should be provided with quarters for the executive offices, as well as for representatives of other railroads, inspec-



Typical Floor Plans for a Fruit and Produce Terminal Building

tion bureaus, and for merchants who may desire accommodation.

In a typical fruit and produce building, space may well be provided in the basement for a locker and washroom for employees, storerooms for various kinds of fruit and produce, a room for egg candling and egg storage, cold storage rooms, kitchen storage, a heater room and an elevator machine room. The first floor may well house the general offices, the kitchen, dining and lunch rooms, a buyers' waiting room, men and women's toilets, police quarters (only in large terminals), a display shed, a cooper shop, an overflow room, an incinerator room, a cashier's office, and telephone and tally booths. On the second floor, space may be provided for offices, a storeroom for records, an auctioneers' room and toilet, a print shop, a public toilet and the auction room.

The buildings should be equipped with heating and lighting systems, as well as with cooling and refrigerating facilities, if required. Sufficient floor space should be provided for free and unobstructed movement around the products on display, and the posts or columns should be located out of the traveled way. Floors, except those of offices, should be of concrete with a metallic hardener surface, and should pitch toward floor drains or doors. Halls and offices should have finished hardwood floors, or concrete covered with linoleum. The stairs and freight elevators should be provided from the basement to the floors above.

Doorways should be equipped with rolling steel or vertical-lift doors for fire protection, and when opened should provide a clear height of about 8 ft. 6 in. to 9 ft., and a clear width of about 16 ft., with windows over the doors where possible. Provision should be made for special doors of a height sufficient to allow the passage of loaded trucks.

Platforms should be about 8 ft. wide, with canopies about 12 ft. wide at car clearance to protect produce from the weather during unloading and delivery. The canopies should pitch toward the building to improve roof drainage. Additional space suitable for use during winter or inclement weather may be provided under canopies by wholly or partially enclosing them in front and providing doorways. Maximum ease in the unloading of merchandise from cars may be afforded by constructing the floor of the display shed at car-floor height. When the cars are released, the track side of the structure may also be used by trucks and wagons in hauling away merchandise.

A public address system may well be installed so that the switchboard operator may call buyers and inspectors from any part of the building to answer telephone calls. Tally and telephone booths should be provided in convenient locations. The auction room should be spacious, to provide good circulation and the required seating capacity. The rostrum should be elevated and provided with desks for clerks. The floor of the auction room should slope downward toward the rostrum, and the desks and seats for buyers arranged so that those present will have a clear view of the auctioneer. The acoustical treatment and lighting should receive special care.

Banana Rooms

Banana rooms are designed to meet two purposes: (1) For the storage and retarding of green fruit, requiring a temperature of around 56 deg. F.; (2) For ripening and holding fruit, requiring a temperature ranging from 56 deg. to 70 deg. F. These rooms should be properly insulated with 3 in. to 4 in. of cork so that an even temperature may be maintained, as otherwise injury to the fruit will occur, whether it is green or ripe. Pipe coils, or ice bunkers, should be located at the ceiling with drip pans connecting with the drainage system. The floors of banana rooms should be provided with a concrete wearing surface, from 3 in. to 4 in. thick, laid on cork insulation and sloped toward a floor drain or the door. Banana hooks, 8 in. apart, should be suspended from overhead joists which should be about 14 in. apart, except over walking aisles where they are omitted. Banana rooms should be equipped with cold-storage doors, while the walking aisles should be from 2 ft. 9 in. to 3 ft. in width.

Poultry platforms should be from 16 ft. to 20 ft. wide and at car-floor level. They should be covered, and supplied with water and light, and the supports should be so located as to minimize interference with trucking and the handling of crates. Usually space should be provided near poultry platforms for crate storage and cooperage.

Refrigeration and Air Conditioning

The installation of refrigeration and air-conditioning systems in fruit and produce terminals is necessary, and such systems should be designed especially to meet the local conditions and requirements of the buildings. Cold storage rooms of the proper size, shape and location should be provided, and the various rooms chosen for refrigeration purposes should have the heat loss reduced by means of insulation, thus reducing the refrigeration required. All low-temperature pipe lines should also be properly insulated.

Temperature of Rooms for Various Products

Fruits (not frozen) except bananas..... (Limes and lemons slightly higher)	30 deg. to 40 deg. F.
Fresh vegetables	32 deg. to 40 deg. F.
Eggs (not frozen)	29 deg. to 32 deg. F.
Cheese	32 deg. to 42 deg. F.
Fresh Meats	28 deg. to 33 deg. F.
Pork Products	25 deg. to 28 deg. F.
Bananas	56 deg. to 70 deg. F.
Miscellaneous food products: Cereals, dried fruits and vegetables, nuts, canned goods, etc.	32 deg. to 40 deg. F.
Plants, nursery stock and flowers.....	28 deg. to 32 deg. F.

Rooms used for the cold-storage handling of food products, with the exception of freezer and hardening rooms, should have a temperature range of 32 deg. to 40 deg. F. Freezer and hardening rooms differ from these rooms in the amount of refrigeration developed and in the thickness of insulation required, and are designed to provide temperatures as low as 65 deg. F. below zero. Cold storage rooms may be built in any type of building, in the basement or on the upper floors. The principal consideration is to provide ample air circulation.

Where different temperatures are required for storage, it is more desirable to have smaller rooms built in blocks, rather than one large room, as in this way the unoccupied rooms may be shut off, thus saving refrigeration. Economy of space, piping and refrigeration may be had by arranging the rooms in blocks, as the interior partitions between rooms, being held at about the same temperature, will require less insulation than outside walls. The walls of cold storage rooms should have a high capacity for resisting moisture. Hollow tile walls resist the entrance of moisture better than those of concrete or brick, and also afford better insulation owing to their enclosed air spaces.

An economical type of wall consists of hollow tile protected on the outside with a layer of hard brick, and insulated on the inside with cork and then plastered. Air in the enclosed spaces of hollow tile carries some

moisture which condenses on the colder surfaces next to the low-temperature spaces. In enclosed spaces, the rotting of wood construction occurs with an accumulation of moisture or, with ceilings, the moisture drips down through the insulation.

Air Circulation Necessary

The design of the rooms should be such as not to retard or interfere with the circulation of air, as the process of heat interchange by means of the air is essential, the moisture being taken up by the air in circulation and carried quickly to the pipe coils where it is deposited as frost. If the circulation of air is sluggish, the moisture will condense on the walls and packages, or else remain in the air, producing a damp, moldy room. The most effective system for an active circulation of air is obtained by arranging coils, or bunkers, in the upper part of the room for the entire length. The baffles are insulated to prevent sweating and dripping. Single overhead bunkers are suitable for rooms with a height of from 10 ft. to 12 ft. and a width of 16 ft., while double bunkers are required for wider rooms. Side bunkers are installed in rooms having a low headroom, the maximum width of rooms for a single bunker being 12 ft., greater widths requiring bunkers on both sides. Side bunkers are not as effective as overhead bunkers.

Non-bearing partition walls may be constructed of three inches or more of cork insulation, plastered on each side. This type of wall has no air spaces and takes up less space than an insulated partition. False ceilings may also be constructed of the same material. Windows should not be provided in cold-storage rooms, but if required, should be used as sparingly as possible. Sash should have multiple panes of glass with air spaces between. A humidifying system should be installed to prevent evaporation losses and the drying out of the various products in storage. This applies particularly to bananas, some kinds of fruit, and eggs. Floors of cold storage rooms should consist of concrete over the floor insulation.

Proper drainage should be installed to insure and maintain sanitary conditions. Drain pipes should be of the proper size, with all the necessary traps, cleanouts and appurtenances. Hand holes should be equipped with approved covers set flush with floors, and a complete cleanout system should be furnished. Hose nozzles should be supplied for flushing the floors of the various rooms when desired.

Heating Systems

A desirable method for heating the buildings properly is by the direct steam heating system, or by a combination steam and hot air system. In a combination system, the steam passes through pipes to radiators or to unit heaters, where the air passes over pipe coils and is distributed at the proper temperature throughout the building by means of electrically operated fans. The temperature is controlled by the installation of thermostatic regulators. Unit heaters should be located as far above the floor as space will permit and must not obstruct the trucking aisles.

Electric Lighting

Electric lighting should be ample to meet the local requirements. Circuits should be designed to effect economy, and switches should be located in accessible and convenient places. A system of flood lighting throughout the display shed should be installed. Extension cords should be provided for lighting the inside of cars in order that unloading may be handled more conveniently and to better advantage.

Railroad Bill Passed by House

(*Continued from page 828*)

it protected their interests and that without this bill a reduction of employees would occur."

Mr. Rayburn attempted to make it clear that the repeal of recapture does not transfer any real money except the $10,000,000, or so already collected and the interest on it. He said "there has been no arrival at the amount nor any agreement as to the amount that the railroads owe. They have tentative valuations. They have guesses, very good guesses, but the recapture finding is also tentative and indefinite, in a way. We are not going to make the railroads a present", he said. "We are simply admitting that we cannot collect an impossible amount." He also pointed out that the valuation amendment will relieve the commission of the burden of bringing valuations down to date with the particularity now prescribed.

Labor Provisions

The Railway Labor Executives' Association, after the House committee had reported the bill, issued a statement expressing pleasure that "the President has approved the labor provisions adopted by the Senate at our suggestion" but "regret that circumstances made it impossible to insert in the emergency legislation the provision for the shorter work period." "That fight has not been abandoned, however," the statement added.

Emphatic opposition to the labor amendments to the bill, as passed by the Senate, was made during the week by President Harriman of the Chamber of Commerce of the United States in a letter to the members of the House committee. President Harriman said that the Senate labor amendments appeared undesirable and inconsistent with sound principles of railroad regulation, adding:

> The membership of the Chamber of Commerce of the United States has repeatedly declared that the solution of the railroad problem should largely be sought by eliminating hampering restrictions upon managements. At the annual meeting on May 5, 1933, they urged adoption of every practicable economy in railroad operation, with emphasis upon responsibility of management for all operating costs and freedom to management to discharge this responsibility.
>
> The Senate amendments to Section 7 of the bill, instead of furthering these ends, would add to the restrictions surrounding railroad operation. They would fix by legislation several questions which are properly within the responsibility of management or subject to settlement by negotiation between managements and employees in accordance with the Railway Labor Act.

Conferees representing the Senate and the House held their first meeting on Wednesday afternoon, with Commissioner Eastman and Dr. Splawn present also, and reached an agreement to accept the House version of the labor provisions in Section 7 as well as several minor amendments, but the principal differences between the two bills were left for further consideration at another meeting on Thursday afternoon.

ELECTRIFICATION OF THE DOUBLE TRACK LINE between Antwerp, Belgium, and Brussels has been decided upon by the Belgian Railroad Administration, says a recent report to the United States Department of Commerce. The project, work on which is expected to begin this Spring, will involve an expenditure of approximately $2,250,000 of which about $1,000,000 will be for electric locomotives. Belgian labor and materials will be used exclusively with the exception of certain types of motors which are not manufactured in that country.

NEWS

Railroad Credit Corp. Closes Lending Period

Net loans outstanding as of May 31 totaled $72,379,028, monthly report to I. C. C. shows

The Railroad Credit Corporation to May 31, had made loans to railroads, to meet their fixed interest obligations, totaling $73,691,368, with repayments of $1,312,340, net loans outstanding $72,379,028, according to the monthly report of that corporation filed with the Interstate Commerce Commission. In a letter addressed to chief executives of participating carriers accompanying the report, E. G. Buckland, president of The Railroad Credit Corporation, said:

"At the termination of the lending period, May 31, 1933, substantially all of the emergency revenues, which accrued to the 432 participating carriers on traffic moved up to and including March 31, 1933, had been received and allocated to the purposes of the plan. The receipts from lap-over items, which must be paid in June, will be used for general liquidation purposes. The plan was created, primarily, to benefit the credit position of the transportation industry by preventing defaults in the fixed interest obligations of participants. The unexpected and unprecedented conditions, which have existed during the entire life of the corporation, made this task more difficult than was anticipated when the plan was first under consideration.

"A review of the lending period shows that 64 carriers applied for loans aggregating $149,241,868. Of this sum, applications for $75,550,500 were, for various reasons, (principally the granting of similar applications by the Reconstruction Finance Corporation), removed from the docket or denied, while loans actually made totaled $73,691,368. A brief summary of the corporation's resources to May 31, 1933, and the application thereof, excluding accrued but uncollected interest, is stated in the accompanying table.

"It will be noted that the fund heretofore reserved for the purpose of making the tax refunds, required by paragraph 4 of the plan, has been curtailed. This action was taken on the basis of revised estimates of claims, as furnished by participating carriers. To the extent necessary, the reserve will be replenished from collections properly creditable to the fund. The board of directors will review, from time to time, the corporation's need for funds and any balance over and above its requirements will be distributed in accordance with the provisions of paragraph 14 of the plan."

RESOURCES

Emergency revenues accruing to participating carriers through March 31, 1933, and reported to the Credit Corporation.....	$74,659,100.35
Less amounts reported but unpaid —receivership items, etc.....	244,915.14
Total emergency revenue payments into the fund.....	$74,414,185.21
Less refund of taxes paid on such revenues	341,975.28
Net available for the purposes of the Marshalling and Distributing Plan, 1931.....	$74,072,209.93
Proceeds from sale of capital stock	1,200.00
Interest collected on loans, bank balances, etc.—Net.....	584,015.73
Total	$74,657,425.66

APPLICATION OF RESOURCES

Loans to participating carriers..	$73,691,368.00
Less repayments	1,312,339.78
Net outstanding	$72,379,028.22
Expense of administration.....	194,991.88
Net disbursements	$72,574,020.10
Balance in general fund.....	578,844.17
Balance in petty cash fund.....	25.00
Balance in reserve for tax refunds, etc.....	1,504,536.39
Total	$74,657,425.66

Advertising on Dining Car Menus

The New York Central and the Pennsylvania are changing the form of the bills of fare in their dining cars to an eight-page folder printed in two colors, to accommodate advertisements; this being a part of the general railroad campaign to increase revenues by every legitimate means. The announcement says that other large roads are to adopt the same policy. The dining cars of the Pennsylvania and the N. Y. C. feed upward of 300,000 persons monthly.

Western Roads Postpone Action on Passenger Fares

Action on the part of the executives of Western railroads in connection with proposals to reduce the basic passenger rate from 3.6 cents per mile, was postponed until July, following discussion of the subject at a meeting of the Western executives at Chicago on June 6. Among the various factors which entered into consideration of reducing the basic rate are opposition on the part of eastern railroads, the pending appointments of a coordinator and the present freight rate investigation, I.C.C. No. 26,000. A report of the committee of five presidents of western railroads recommending a rate of three cents per mile in sleeping cars, two cents per mile in coaches and one cent per mile for excursions, was given consideration at the meeting.

O.P. Van Sweringen Heard in Morgan Investigation

Questioned Before Senate Committee on Banking and Currency on June 5 and 6

O. P. Van Sweringen was called before the Senate committee on banking and currency on June 5 and 6 and questioned by Ferdinand Pecora, counsel for the committee, in connection with the investigation which the committee has been making of the affairs of J. P. Morgan & Co. Only one or two Senators were present. Apparently the purpose was to show that a large railroad system had been built up partly through loans from or bond issues sold through the Morgan house and that the Van Sweringen brothers had acquired control of railroads largely with borrowed money and the proceeds of the sale of securities. Little was developed that had not previously been disclosed in great detail in the various consolidation proceedings before the Interstate Commerce Commission.

Mr. Van Sweringen read a prepared statement outlining the gradual acquisition of control of various railroads, beginning with the New York, Chicago & St. Louis in 1916, and of the efforts to effect consolidations pursuant to the policy of the transportation act of 1920. In discussing the proposed purchase of the Huntington interests in the Chesapeake & Ohio he said: "We talked with J. P. Morgan & Co., whom we regarded, as does the world, as wise counsellors in matters of finance. They felt that it wasn't the time for us to make the expenditure." A year or so later, he said, the Morgan firm agreed that the time had arrived to make the purchase, and through its aid a large purchase of new equipment and other betterments were made. "We were sure," he added, "that it could be made to earn a lot more money and perform a much better service. We were correct in our belief. It is the one railroad that has earned and paid its full dividend throughout the period of this depression that we hope is now ending." To divest the Chesapeake & Ohio shares from the Nickel Plate and at the same time keep them compacted with other shares held by the Van Sweringen interests, he said, the Chesapeake Corporation was formed, after the Interstate Commerce Commission had failed to approve the proposed Nickel Plate unification but had indicated that the C. & O. was more logical as the backbone of the system. Later, as the four-system plan developed, the Allegheny Corporation was formed,

(*Continued on page 840*)

Net in April Approached Return for April, 1932

$19,041,789 or 1.1 per cent compares with $20,273,161 or 1.17 per cent last year

Class I railroads for the first four months of 1933 had a net railway operating income of $52,761,317, which was at the annual rate of return of 0.78 per cent on their property investment, according to reports compiled by the Bureau of Railway Economics. In the first four months of 1932, their net was $85,647,469, or 1.26 per cent.

Operating revenues for the first four months totaled $881,689,125, compared with $1,087,903,768 for the same period in 1932, or a decrease of 19.0 per cent. Operating expenses amounted to $702,034,389, compared with $864,366,730 for the same period in 1932, or a decrease of 18.8 per cent. Class I railroads in the four months paid $88,152,720 in taxes compared with $97,770,598 for the same period in 1932 or a decrease of 9.8 per cent. For April alone, the tax bill amounted to $22,156,122, a decrease of $2,545,995 under April, 1932.

Seventy Class I railroads failed to earn expenses and taxes in the first four months of 1933, of which 18 were in the Eastern district, 13 in the Southern and 39 in the Western.

CLASS I RAILROADS—UNITED STATES

	Month of April 1933	1932	Per Cent Decline
Total operating revenues	$224,877,399	$264,885,723	15.1
Total operating expenses	173,296,169	209,383,102	17.2
Taxes	22,156,122	24,702,117	10.3
Net railway operating income	19,041,789	20,273,161	6.1
Operating ratio—per cent	77.06	79.05	....
Rate of return on property investment	1.10%	1.17%	....
	Four months ended April 30		
Total operating revenues	$881,689,125	$1,087,903,768	19.0
Total operating expenses	702,034,389	864,366,730	18.8
Taxes	88,152,720	97,770,598	9.8
Net railway operating income	52,761,317	85,647,469	38.4
Operating ratio—per cent	79.62	79.45	....
Rate of return on property investment	0.78%	1.26%	....

Class I railroads for April had a net of $19,041,789, which, for that month, was at the annual rate of 1.10 per cent. In April, 1932, their net was $20,273,161 or 1.17 per cent. Operating revenues for April amounted to $224,877,399, compared with $264,885,723 in April, 1932, a decrease of 15.1 per cent. Operating expenses totaled $173,296,169, compared with $209,383,102 in the same month in 1932, or a decrease of 17.2 per cent.

Class I railroads in the Eastern district for four months had a net of $49,127,758, at the rate of 1.47 per cent. For the same period in 1932, their net was $67,924,906, or 2.04 per cent. Operating revenues in the Eastern district for four months totaled $455,973,618, a decrease of 19.8 per cent below the corresponding period in 1932, while operating expenses totaled $345,171,923, a decrease of 20.6 per cent. Class I railroads in the Eastern district for April had a net of $12,340,614, compared with $16,413,318 in April, 1932.

Class I railroads in the Southern district for the four months had a net of $13,806,855, at the rate of 1.20 per cent. For the same period in 1932, their net amounted to $9,221,159, at the rate of 0.80 per cent. Operating revenues in the Southern district for four months amounted to $122,832,412, a decrease of 12.2 per cent under the same period in 1932, while operating expenses totaled $94,035,145, a decrease of 18.0 per cent. Class I railroads in the Southern district for April had a net railway operating income of $4,465,694 compared with $1,811,224 in April, 1932.

Class I railroads in the Western district for four months had a deficit of $10,173,196. For the same four months in 1932, they had a net railway operating income of $8,501,404, which was at the rate of 0.36 per cent. Operating revenues in the Western district for the four months amounted to $302,883,095, a decrease of 20.2 per cent under the same period in 1932, while operating expenses totaled $262,827,321, a decrease of 16.6 per cent compared with the same period in 1932. For April, the railroads in the Western district reported a net of $2,235,481. The net of the same roads in April, 1932, amounted to $2,048,619.

Allegheny Regional Board

The Allegheny Regional Advisory Board will hold its next meeting at the Shady Hollow Country Club, Canton, Ohio, on June 14. The headquarters will be at Hotel Onesto and the executive and certain other committees will meet on June 13. Besides the reports of commodity committees, the Board will have discussions on numerous subjects, including store-door delivery, assessment of demurrage on shipments bunched in transit, and fitness of cars furnished for loading.

Air-Cooled Lounge Cars on Frisco

The St. Louis-San Francisco and the Missouri-Kansas-Texas placed three air-cooled lounge cars in service June 1 on Texas Special trains No. 1 and No. 2 between St. Louis, Mo., Dallas, Tex., Ft. Worth and San Antonio. Each of these was rebuilt and equipped with ice-type air cooling by the Frisco at its shops at Springfield, Mo. The air-cooling system installed is one developed on this road and embodies details of design worked out by its mechanical department.

Postponement Asked in Reverse Gear Case

The American Railway Association and the American Short Line Railroad Association have filed a petition asking the Interstate Commerce Commission to postpone the effective date of its orders requiring the installation of power reverse gear on locomotives pending a final court decision on their request that the federal district court for the northern district of Ohio set aside the commission's order. The court has set June 19 for the hearing on application for a temporary stay.

Regulation for Contract Motor Carriers in Ohio

Laws also limit vehicle sizes and drivers' hours—New levies on for-hire vehicles

The Ohio legislature has enacted two measures dealing with commercial motor carriers. One of them places further restrictions on the size and weights of motor vehicles and the other provides for regulation and additional taxation of contract carriers. Common carriers in Ohio are already subject to regulation. The maximum length for a single vehicle is set at 35 ft.; tractor and semi-trailer, 40 ft.; tractor and full trailers, 60 ft. Maximum gross weight allowed per single vehicle is 12 tons; tractor and semi-trailer, 21 tons; tractor and trailers, 33 tons. The maximum weight per axle (pneumatic tires) is set at 9 tons. This bill passed both houses of the legislature unanimously.

Contract carriers are required to secure permits from the Public Utilities Commission (taxicabs, hotel and school buses, dump and road construction trucks and farm trucks are exempted). The commission is to supervise, regulate, establish safety rules and require annual and other reports from contract carriers. Local authorities, however, retain the right to establish reasonable police regulations within their boundaries. Applications for permits must show the principal place of business of the applicant and give the names and addresses of all persons or corporations whom the applicant proposes to serve (all such customers to sign the application). The applicant must also give full information concerning the number, kind and capacity of all motor vehicles to be used by him and must advertise his application in a newspaper for three weeks. When the commission is convinced that the applicant has complied with all laws, rules and regulations and is, in fact, a contract, and not a common carrier, the permit will be issued at once. No person or corporation may hold more than one such permit. No change in the number of capacity of vehicles operated nor in the customers the permit-holder serves may be made without due notice to the commission. The commission may, upon 15 days' notice and following a hearing, revoke, suspend or alter any permit.

Special fees over and above existing taxation are provided for contract carriers —for passenger carriers, $20 for 7 passengers to $150 for more than 24; for freight, $20 for trucks of 1¾ tons' capacity or less to $150 for trucks of over 3½ tons. Trailers are to be levied upon at 20 per cent of the rate for the vehicle which draws them. Contract carriers are also required to post liability bonds, to employ competent drivers and are not to keep drivers on duty for more than 14 hours without eight hours rest (no part of which rest time may be spent on a motor vehicle). Violations carry a penalty of from $25 to $1000 and convictions are to be reported to the Public Utilities Commission for permanent record.

The Legislature had previously passed a bill setting up a state highway patrol.

I. C. C. Theories Rejected in Port Preference Case

Supreme court renders five-to-four decision on Galveston-New Orleans issues

The long-standing railroad policy of equalizing export and import rates via competitive ports was approved and some of the Interstate Commerce Commission's theories of its power to regulate railroad competition to correct alleged discrimination, as expressed in its decision in the Galveston port preference case, were disapproved in a five-to-four decision of the Supreme Court of the United States rendered on May 29. The commission had held that export and import freight rates on 14 commodities from or to points in southwestern states were unduly prejudicial to Galveston and unduly preferential of New Orleans and, where the distance to Galveston is less than the distance to New Orleans by over 100 miles, it prescribed minimum differentials in favor of Galveston. The carriers serving the two ports had for many years equalized the export and import rates through the two ports and the court, approving such practice, held that ports as such are not localities (with respect to export and import traffic routed through them) susceptible of undue preference or prejudice, within the intent of the interstate commerce act. It also held that lines serving New Orleans and not Galveston could not properly be held guilty of unjust discrimination against Texas ports in the absence of a finding of effective participation in the rates to them. "The plain purpose" of the commission's orders, the court said, "was to build up the Texas ports by diverting export and import traffic to them."

The case had been twice argued before the Supreme Court. The opinion was by Justice Roberts. The Chief Justice, and Justices Stone, Brandeis and Cardozo dissented. The case was on appeal by the Texas & Pacific and others from the district court for the southern district of Texas. Its judgment was reversed and the cause remanded for further proceedings in conformity with the opinion.

Following are extracts from the opinion:

"These practices have not been indulged either to aid or to harm a port as such, but solely to obtain or retain business for the carrier's own line.

"With the abstract fairness of such adjustment neither the commission nor the courts have any concern. This is not to say, however, that the rates promulgated are beyond the commission's jurisdiction. While that body has no control over the ocean rate, it has power to compel a reasonable charge for the rail haul. As the carriers are in competition for the business they may, within the zone of reasonableness, prescribed by the statute, adjust their rates so as to obtain or retain the traffic.

"The theory of the act is that the carriers in initiating rates may adjust them to competitive conditions, and that such action does not amount to undue discrimination.

"It seems too plain for argument that the commission has no authority, upon a showing by a gateway that under an existing tariff too much traffic passes through another, or too little through it, to readjust the rates and prescribe differentials so as to divert traffic through the complaining gateway. The interests and industries of a gateway are not entitled thus to obtain a benefit reflected from additional traffic which would be diverted by such action of the commission. We perceive no difference in principle as to export or import traffic routed through ports.

"The legislative history of the act demonstrates that Congress did not intend to forbid the equalization of export or import rates by lines serving several ports in order to meet competition. These rates, it was said, were not to be proportioned to the respective distances between inland origins or destinations and the ports.

"Both equalization and differentials had for some time been maintained in the rates to various Atlantic ports.

"We conclude that ports as such are not localities with respect to export and import traffic routed through them, susceptible of undue preference or prejudice within the intent of the act.

"While the commission's jurisdiction of port rate relation was fully argued, the appellees seek to support the orders under the power to abate discrimination between persons and shippers. The argument is based upon averments of the complaint as to prejudice of persons at Galveston. There is, however, no allegation that shippers or consignees in the interior, are prejudiced or preferred by the equalization of the New Orleans rates with those to the Texas ports, and the commission made no finding of preference or prejudice of shippers or consignees, or localities of origin and destination.

"It compared at great length the facilities of the ports, their volume of traffic, the relative growth of their export and import business, their respective steamship facilities, and reached the conclusion that though relative distance is not conclusive and competitive conditions are to be regarded, the Texas ports are entitled to an advantage in rate consequent upon the shorter haul to and from the interior territory. The commission's three reports abound with statements that a differential in favor of the Texas ports will divert traffic running to New Orleans and send it through the Texas ports.

"The action of the commission cannot be justified upon any theory that it was protecting shippers and consignees, who would naturally desire all possible routes for foreign shipment. On the contrary, the orders prohibited a practice born of competition, and not proved to involve a loss of revenue to the appellants. The plain purpose of the orders was to build up the Texas ports by diverting export and import traffic to them. As we have shown, Section 3 grants no such power.

"A carrier or group of carriers must be the common source of the discrimination—must effectively participate in both rates, if an order for correction of the disparity is to run against it or them. Where an order is made under Section 3 an alternative must be offorded."

Speedier Passenger Train Services on French Roads

Recently-issued time-tables show many accelerations—Faster international runs

Passenger train services on several railways of continental Europe have been considerably accelerated according to an analysis of time-tables effective May 14 which was published in a recent issue of the Railway Gazette (London).

In France, on the Nord, four trains, two in each direction daily, now make the 226.7 miles between Paris and Liege as a non-stop run at average speeds approaching 60 m.p.h. Chiefly because of this non-stop run, the schedule of one of the Berlin-Paris trains has been cut by 70 min., thus reducing the running time between these national capitals to 11½ hrs. Also, the schedules of the Nord's two Paris-Brussels Pullman trains has been cut to 3¼ hr. or to an average speed of 59.4 m.p.h. for the 193.1-mile journey Other notable accelerations on the Nord involve the 95.1-mile run between Paris and St. Quentin where two trains are now on an 88-min. schedule; on the Paris-Calais line the 10 a.m. boat service will be restored July 1 and the train will make the 140.5-mile run to Etables in 133 min., reach Calais, 184.1 mi., in 185 min., including the stop at Etaples, and London at 4:55 p.m., 20 min. earlier than before. On the Etat there will be installed on July 1 a first-class rail motor car service betweeen Paris and Trouville-Deauville. This 136.2-mi. run will be made by the rail motor cars in two hours. Also, the Etat has shortened several main-line train schedules and otherwise improved services by better branch-line connections. The latest improvement on the Paris-Orleans is the acceleration on its line of the "Sud Express" which runs from Paris to Bordeaux and of the reinstated "Barcelona Express" which is to cover the 126.7 miles between Paris and Vierzon in 137 min. non-stop. Although the Midi has not speeded-up its principal trains, its new time-tables show that schedules of several secondary trains have been materially shortened. The principal improvement on the Est is the acceleration of the 1:30 p.m. train from Strasbourg to Paris which now leaves the former place 18 min. later and arrives in Paris at 7:30 p.m. as before. Slight accelerations of its principal express trains have also been announced by the Paris, Lyons & Mediterranean.

The Gazette article also lists several improvements in European international passenger train services such as accelerations of the "Rheingold Express," between Amsterdam, Holland, and Basle, Switzerland; and the "Simplon" between Milan, Italy, and Paris.

Rate Case Arguments June 26-28

The Interstate Commerce Commission has assigned its general rate reduction investigation for oral argument at Washington on June 26, 27 and 28. Briefs are to be filed by June 20.

Eastman Fears a Return to Rate-Cutting Policies

Concurring in petroleum products case, he comments on trend which he sees developing

The Interstate Commerce Commission on June 3 announced a decision authorizing the Illinois Central and the Yazoo & Mississippi Valley to establish and maintain reduced rates on commercial gasoline, kerosene, and naphtha, in carloads, from the New Orleans-Baton Rouge group to Memphis, Tenn., and certain inland points, to meet river-barge competition, without making corresponding reductions at intermediate points, while denying the application for similar fourth section relief on petroleum products to Paducah, Owensboro, and Louisville, Ky. The roads had asked authority to advance or reduce such rates as further circumstances and conditions may warrant. The commission prescribed a minimum of 15 cents per 100 pounds to Memphis and of 11 cents additional to points intermediate to or beyond Memphis. The purpose of the application was to meet the costs and charges of oil companies transporting their own products in their own equipment and also to meet the competition of independent water lines. The roads stated that with their existing facilities they could carry the entire amount of additional tonnage with comparatively small additional expense. The commission denied the application as to traffic to Ohio river points on the ground that at Memphis the water-borne movement of petroleum products from New Orleans is the dominating and controlling factor in the distribution but at the Ohio river points is only a secondary factor.

Commissioner Eastman, in a separate opinion, said he concurred in what was proposed as a temporary expedient but that "it raises questions of very great importance to which I believe the thought of the country should be directed," and that "this promises to be the beginning of a return to a policy of railroad rate making which existed for many years and reached its fullest development in the southeastern portion of the country."

"The danger of following this theory under present conditions is obviously much greater than it was in the old days, for the trucks, pipe lines, and electric transmission lines have greatly curtailed the amount of strictly noncompetitive traffic," he said.

"After the railroads swept the inland waterways practically clean of competing traffic, two influences set in. One was a public demand upon Congress for appropriations for the improvement of the waterways, so that they could handle traffic more cheaply and efficiently. The other was a gradual revision of the railroad rate structure to a so-called "dry-land" basis, owing to the absence of water competition which could be used to justify fourth-section relief. These two influences have brought a return of the water competition which had disappeared, and it is progressively increasing.

"This return of competition has so alarmed the railroads that they are clearly about ready to go back to the old policy of rate-cutting, and have already made several moves in this direction, of which that which is here under consideration is one. If they continue with this policy unchecked, I have little doubt that they will eventually cripple their water competitors as they were crippled in the days gone by. The country will then be in the situation of having expended many millions of dollars on the improvement of waterways merely for the purpose of depressing railroad rates between certain favored points, and all hope of recouping some return on this investment through the imposition of tolls will be gone unless these tolls are imposed upon the railroads.

"Before going back to this old policy, it would seem wise to indulge in some forethought and consider where it will eventually lead, with respect to both water carriers and trucks. While I make no pretense to having thought the matter through, I have the feeling that the ultimate results will be good for neither the country nor the railroads.

"It may well be that the water carriers ought to be charged tolls for the use of the waterway improvements that have been made at government expense, and that the trucks ought to pay more than in many instances they do pay toward the support of the highways. These are questions which ought to be followed through to definite conclusions. Incidentally this record shows that the Mississippi river improvements have not inured to the sole benefit of the federal barge line, as some seem to think, but are widely used by other water craft. But assuming fair competitive conditions, each of these transportation agencies probably has some field in which it can operate more economically and effectively than the others.

"If that be so, and I think it is so, the problem is to ascertain in each case what that field is. Assuming that this can be ascertained, I am much inclined to believe that a system of rates for all the agencies based on cost plus a reasonable profit under normal traffic conditions would allow them all to perform their appropriate functions, and in the end be better for all concerned, including the country and its industries, than any system of competitive rates. The trouble with many railroad rates, incidentally, is that they are too high, judged by cost standards, and offer an unnecessary invitation to competition. I believe this to be true, for example, of the normal level of petroleum rates throughout the South.

"I submit these observations, not as final conclusions, but to stimulate thought on what I regard as a very important and serious question. Without such thought we are all very likely to go wrong and wind up in the same chaotic and unsatisfactory conditions which originally impelled federal regulation of the railroads."

In another report the Commission also authorized fourth-section relief as to rates on gasoline, in tank-car loads, from the New Orleans-Baton Rouge group and Mobile, Ala., over interstate routes to Birmingham, Tuscaloosa, Holt, Montgomery, and Selma, Ala., to meet competition by barge up the Warrior, Black, Tombigbee, and Alabama rivers.

Research in the Field of Railway Equipment

Subject to be discussed at Chicago meeting of Railroad Division A. S. M. E., on June 26

The Railroad Division of the American Society of Mechanical Engineers will hold morning and afternoon sessions on Monday, June 26, as part of the Spring Meeting of the Society, which will be held at the Palmer House in Chicago during Engineering Week of the Century of Progress Exposition. Both sessions of the Railroad Division meeting will be devoted to a consideration of the contributions of research in the development of railway equipment. The morning session, over which L. A. Downs, president of the Illinois Central, will preside, will be opened with an address by R. H. Aishton, chairman of the American Railway Association, after which the following papers will be presented:

Research Done by Railroads, by Col. C. D. Young, vice-president, Pennsylvania.

Research Done by Industries, by Samuel O. Dunn, chairman of board, Simmons-Boardman Publishing Company.

Research Done by Universities, by Prof. G. A. Young, Purdue University, and Prof. E. C. Schmidt, University of Illinois.

The afternoon session will be devoted to discussions of specific phases of research developments as set forth by the papers at the morning session. The discussions will be as follows:

Research and Development Resulting in the Promotion of the Standard Freight Car, by F. H. Hardin, assistant to president, New York Central Lines.

Car Trucks and the Development of Steel Castings, by Harry M. Pflager, senior vice-president, General Steel Castings Corporation.

Locomotive and Car Wheels, by Charles T. Ripley, chief mechanical engineer, Atchison, Topeka & Santa Fe.

Development of Passenger Cars, by Peter Parke, chief engineer, The Pullman Company.

Automotive Engines and Cars, by L. G. Coleman, manager, Locomotive Department, Ingersoll-Rand Company.

Car and Locomotive Air Brakes, by Samuel Dudley, professor of mechanical engineering, Yale University.

Development of Draft Gear, by L. P. Michael, chief mechanical engineer, Chicago & North Western.

Locomotive Development, by W. E. Woodard, vice-president, Lima Locomotive Works, Inc.

Development of the Locomotive Boiler, by H. B. Oatley, vice-president, the Superheater Co.

Running Gear and Counterbalancing, by A. G. Trumbull, chief mechanical engineer, Advisory Mechanical Committee, Chesapeake & Ohio; Pere Marquette; Erie; and New York, Chicago & St. Louis.

Locomotive Valve Gears and Steam Distribution, by G. S. Edmonds, superintendent motive power, Delaware & Hudson.

Research and Development of Locomotive Accessories, by C. H. Bilty, mechan-

ical engineer, Chicago, Milwaukee, St. Paul & Pacific.

Car and Locomotive Materials, by Lawford Fry, railway engineer, Edgewater Steel Company.

Wage Statistics for March

Class I railways, excluding switching and terminal companies, reported to the Interstate Commerce Commission a total of 919,881 employees as of the middle of March, a decrease of 2.3 per cent under the number for February and of 14.75 per cent under the number for March, 1932. The total compensation for the month was $110,607,067. A total of 1,034,022 employees were reported as having received some pay during the month either for full time or part time. The number of hours paid for per working day was 7.9 per cent less in March than in February.

Shippers' Board Meetings

The following shippers' advisory boards will meet during June and July: The Allegheny Regional Advisory Board on June 14 at Canton, Ohio; the Pacific Coast Transportation Advisory Board on June 16 at Los Angeles, Cal.; the Trans-Missouri-Kansas Shippers' Advisory Board on June 21 at Kansas City, Mo.; the Pacific Northwest Advisory Board on June 21 at Spokane, Wash.; the Central Western Shippers' Advisory Board on June 28 at Riverton, Wyo.; and the Northwest Shippers' Advisory Board on July 25 at Aberdeen, S. D.

R. F. C. To Consider Reasonableness of Salaries

The specific limitation of $17,500 on salaries that may be paid by companies borrowing money hereafter from the Reconstruction Finance Corporation, proposed by the Senate recently as a provision in a bill providing for R. F. C. loans to insurance companies, was definitely removed when both Houses of Congress on June 6 agreed to the conference report on the bill including the substitute provision adopted by the House leaving the question to the discretion of the R. F. C. directors. The final form of the bill therefore provides that the R. F. C. shall not make loans to companies paying salaries which it considers more than "reasonable."

American Legion Advocating Travel by Rail

The American Legion, in conjunction with railroads operating into Chicago, is circularizing its membership with a view to encouraging members going to Chicago for the American Legion convention on October 2-5 to travel by train. The circular calls attention to rail fares at prices "to fit any man's purse, a round-trip ticket from any point in the United States to Chicago good in coaches or Pullman cars for only the price of the regular one-way fare and rates as low as one cent a mile for groups traveling in coaches. "These extremely low fares," the circular continues, "certainly will interest Legionnaires who prefer traveling without cares or encumbrances. There are no worries or bothers or unexpected expenses, nothing to park but yourself and you loll around in the luxurious comfort of modern coaches and Pullmans, and answer 'mess call' in de luxe dining cars."

Not only is the Chicago convention destined to be the most important in the history of the Legion, from the standpoint of its business sessions, but in attendance as well. Preparations are under way now for the transportation, housing and entertainment of 250,000 Legionnaires, their families, friends and guests.

Examiners Recommend No General Revision of Non-Ferrous Metals Rates

The Interstate Commerce Commission on June 5 made public a voluminous proposed report by Examiners F. E. Mullen and J. G. Cooper on the general investigation of rates on nonferrous metals throughout the country, Part 12 of the general rate structure investigation. They recommend findings by the commisison that rates on ores and concentrates of nonferrous metals and on copper, lead, and zinc, in the several districts, are as a whole less than maximum reasonable rates but not less than minimum reasonable rates, although they say that in some instances the rates are now on a minimum basis of reasonableness. In view of the existing conditions in the metals industry no general revision by the commission is recommended at this time. A rate of $8.50 per ton is proposed as maximum from all Arizona, Utah, and Montana smelter points to certain Pacific ports and a maximum of $9.50 from Utah smelters to north Pacific ports. A finding is recommended that commodity rates on copper, brass and bronze articles between points in official territory are depressed rates and that rates proposed by the carriers for application on such articles in I. & S. 3376 are justified as maxima; also that the maintenance of existing rates lower than maxima to meet competition by motor-truck and water carriers is justified. It is recommended that rates on scrap nonferrous metals and by-products of such metals be made 25 per cent of the first-class rates found reasonable as maxima.

Net Deficit For Three Months $94,900,862

Class I railways in the first three months of this year had a net deficit after fixed charges of $94,900,862, as compared with a net deficit of $54,638,462 in the corresponding period of last year, according to the Interstate Commerce Commission's monthly compilation of selected income and balance-sheet items for 151 railways. For March the net deficit was $31,726,132, as compared with $6,047,494 in March, 1932. Total current assets at the end of the month, $937,435,487, were less than the current liabilities, $1,061,824,178. The commission's summary follows:

Selected Income and Balance-Sheet Items of Class I Steam Railways in the United States†

Compiled from 146 reports (Form IBS) representing 151 steam railways

TOTALS FOR THE UNITED STATES (ALL REGIONS)

For the month of March 1933	For the month of March 1932	Income Items	For the three months of 1933	For the three months of 1932
$10,501,386	$32,584,334	1. Net railway operating income	$33,718,937	$65,380,016
14,696,407	17,857,336	2. Other income	42,073,849	48,829,066
25,197,793	50,441,670	3. Total income	75,792,786	114,209,082
10,570,983	10,537,893	4. Rent for leased roads	31,810,552	31,316,612
44,350,395	43,974,277	5. Interest deductions	132,836,662	131,450,446
2,002,547	1,976,994	6. Other deductions	6,046,434	6,080,486
56,923,925	56,489,164	7. Total deductions	170,693,648	168,847,544
d 31,726,132	*d 6,047,494*	8. Net income	*d 94,900,862*	*d 54,638,462*
		9. Dividend declarations (from income and surplus):		
152,060	3,790,519	9-01. On common stock	11,305,810	17,997,590
534,707	551,047	9-02. On preferred stock	3,330,165	4,754,653

BALANCE-SHEET ITEMS

Selected Asset Items

	Balance at end of March 1933	Balance at end of March 1932
10. Investments in stocks, bonds, etc., other than those of affiliated companies (Total, Account 707)	$768,955,656	$802,851,021
11. Cash	256,149,726	291,385,593
12. Demand loans and deposits	33,665,852	45,514,849
13. Time drafts and deposits	19,216,453	25,997,766
14. Special deposits	37,958,306	43,845,107
15. Loans and bills receivable	11,324,126	14,637,951
16. Traffic and car-service balances receivable	46,405,773	55,267,614
17. Net balance receivable from agents and conductors	38,251,795	39,968,605
18. Miscellaneous accounts receivable	138,053,432	151,365,320
19. Materials and supplies	311,930,867	370,835,727
20. Interest and dividends receivable	37,349,245	33,583,048
21. Rents receivable	2,815,851	3,356,978
22. Other current assets	4,314,061	6,139,869
23. Total current assets (Items 11 to 22)	937,435,487	1,081,898,427
Selected Liability Items		
24. Funded debt maturing within six months*	155,642,467	114,477,087
25. Loans and bills payable	320,678,031	272,779,940
26. Traffic and car-service balances payable	60,086,399	70,289,265
27. Audited accounts and wages payable	207,865,199	224,565,243
28. Miscellaneous accounts payable	59,438,782	48,650,372
29. Interest matured unpaid	189,658,104	160,452,917
30. Dividends matured unpaid	15,667,573	18,963,002
31. Funded debt matured unpaid	59,972,646	51,544,752
32. Unmatured dividends declared	588,721	3,410,784
33. Unmatured interest accrued	107,066,311	104,851,737
34. Unmatured rents accrued	26,595,216	27,076,122
35. Other current liabilities	14,207,196	18,898,572
36. Total current liabilities (Items 25 to 35)	1,061,824,178	1,001,482,706

† Excludes returns for Class I Switching and Terminal Companies. Data for this class of roads were included in all published statements prior to January, 1933.

* Includes payments which will become due on account of principal of long-term debt (other than that in Account 764, Funded debt matured unpaid) within six months after close of month of report.

d Deficit.

A. Johnston Wins in First Test at B. of L. E. Convention

Reports from Cleveland where the Brotherhood of Locomotive Engineers is holding its seventh triennial convention indicate the delegates loyal to the administration of Grand Chief Engineer Alvanley Johnston won the first test vote against an "insurgent" group which has been active in a movement to defeat Mr. Johnston for re-election. The test came on the vote on a motion to unseat Mr. Johnston as chairman of the convention.

Western Pacific Using Oakland Pier

The Western Pacific is now running its passenger trains to and from the Oakland Pier of the Southern Pacific at Oakland, Cal., and passengers are carried to and from the Ferry building at the foot of Market street, San Francisco, on Southern Pacific boats. The waiting room and other facilities at the Pier are now being used jointly by the Western Pacific, the Southern Pacific and the Atchison, Topeka & Santa Fe.

Norfolk Southern To Reduce Fares for the Summer

The Interstate Commerce Commission has authorized the Norfolk Southern to establish and maintain passenger fares on the basis of one and one-half cents a mile, in coaches only, locally between points on its line except between Norfolk, Va., and Virginia Beach, even though the establishment of such fares results in aggregate fares lower than existing through local and joint interline fares, for an experimental period ending September 30.

Low Sunday Fares Between Boston and Portland

The Boston & Maine has installed an experimental fare of $2.50, round trip, between Boston and Portland, 115 miles, on Sundays only, the regular one way fare being $3.92. The experiment is to be continued a sufficient length of time to see what weight should be given to the statements of people who say that if fares were lower they would prefer the railroad train to the automobile. The low fares will be available in the morning, both ways, on three trains and returning in the afternoon or evening on three trains, the last one in each direction starting after midnight.

High Frequency Protects Grain

An experimental plant where stored grain will be electrically treated in order to prevent the depredations of insect pests has been established by the Baltimore & Ohio at Baltimore, Md. Operations at the plant, which is equipped with a 20-kw. Westinghouse standing-wave oscillator operating at a frequency of 42,000,000 cycles per second (seven meters), are being carried on under the direction of J. H. Davis, chief engineer, electric traction, B. & O.

Several years ago Mr. Davis made some tests on some quantities of weevil-infested wheat and determined that an exposure of six seconds to six-meter waves with proper intensity, was sufficient to exterminate the eggs, larvae and adult weevils in the grain. It has been estimated that the annual losses in the value of grain and other materials in the United States due to depredation of insect pests is about two billion dollars. To mitigate this loss it is customary to withdraw stored grain from time to time for "airing and cooling." This temporarily arrests the activity of the insects but when the grain is again stored, the eggs are hatched out and destruction of the grain continues.

In the new B. & O. treating plant the grain is caused by gravity to pass between copper plates which are energized by the oscillator, the velocity of the grain movement being controlled to insure proper exposure.

It has been determined by hundreds of tests that the treatment will exterminate the insect pests, including the eggs and larvae, and grain which was originally infested has been stored for six months after treatment without any indication of further weevil development. Thousands of samples of treated grain and seed have been planted and the growth of this material indicates that the germinating properties have been enhanced.

"Always Time for Courtesy"

There is always time enough for courtesy. This is the subject of a pamphlet being distributed among employees of the Chicago & North Western in an effort to interest them in creating good-will among patrons. The pamphlet, in part, reads as follows:

"With the opening of the World's Fair in Chicago on May 27, there will be a marked increase in passenger travel. Many who will ride on our trains will make their first contact with our railroad. How important it is, therefore, that all employees bear in mind constantly the necessity of treating patrons with kindness, courtesy, tact and good judgment. The public rightfully expects courteous treatment in exchange for patronage. In these times of keen competition it is increasingly important that we be alert. Kind and courteous treatment of our patrons counts far more toward making friends and boosters for our service than any other one factor. But we should go beyond merely being courteous. It should be the aim of employees who come in contact with the public to go out of their way to do things out of the ordinary. We should conduct ourselves in a manner that will make people talk about the kind of treatment they receive when on the North Western."

Co-ordination for All Passenger Services in London

Revenues from London suburban services of British railways are henceforth to be pooled in accordance with the recently-enacted London Passenger Transport Act's plan for co-ordinating all passenger transport services in the metropolitan area. The act sets up a London Passenger Transport Board which will operate all traction services in London, including subways, surface-car lines and buses and in addition supervise pooling arrangements for the suburban services of the railways. Lord Ashfield, formerly general manager of the Public Service Corporation of New Jersey and now chairman of the Underground Electric Railways Company of London, Ltd., has been selected as chairman of the London Passenger Transport Board.

Steam railways are otherwise affected by the Act in that it removes the restriction which has heretofore prevented them from becoming interested in bus companies operating within the London metropolitan area.

N. Y. Railroad Club to Hold Outing on June 29

An extra edition of the "Railway Sage," carrying announcements in connection with the forthcoming outing of the New York Railroad Club, assures members and their guests that to attend this June 29 get-together at the Westchester Country Club, Rye, N. Y., is to participate in an attractive program of events which, by comparison, will relegate the Chicago Century of Progress Exposition to the role of "a second-string pastime."

A perusal of "Railway Sage," which was edited by H. B. Doyle of Doyle, Kitchen & McCormick, reveals that the schedule of events for golfers includes the regular Brady Cup golf tournament; the fourth annual open team championship; and driving and putting contests. Field events includes quoits; driving and putting contests for non-golfers; swimming and new games, including locomotive races in which "model locomotives from our best-known railroads and transit lines will offer zest and excitement to all who are imbued with the sporting instinct."

Announcement is being withheld of the outing's culminating feature but the "Railway Sage," in this connection, hazards the speculation that the "mysterious event" will be "as startling as a tabloid headline, as overwhelming as the plurality for repeal, as significant as the arms conference and as sensational as a bank president's income tax." The dinner will be a "sumptuous repast including all your favorite hors d'oeuvres, pièces de resistance and side dishes" or such, at least, is the report of the appraisal made by "Railway Sage" after its representative's advance glimpse of the menu.

Remaining articles in the "Sage" outline all roads and routes leading to the Westchester Country Club and urge an early filing of applications; these should be sent to D. W. Pye, president of the Tuco Products Corporation, who is secretary-treasurer of the Club with headquarters at Room 830, 30 Church street, New York. Members tickets are $5 including dinner, games and golf and $3 for everything but golf; non-member tickets are respectively $7 and $4.

J. S. Doyle is general chairman of the committees in charge and he is being assisted by Harlan A. Pratt, vice-chairman in charge of golf, and Frank J. White, vice-chairman in charge of games. Members of the general committee are: D. W. Pye, chairman; A. N. Dugan, assistant chairman; T. P. O'Brian; Scott Donahue; Charles G. Melvin; William M. Wampler; J. S. Doyle, Jr.; R. P. Cooley; R. F. O'Leary; E. B. Smith; Maurice N. Trainer; F. H. Hardin; and R. P. Townsend. Other committees are: Attendance, E. A. Jones, chairman; golf, J. H. Parsons, chairman; transportation, J. H. Vander

Veer, chairman; dinner, R. D. Jenks, chairman; reception, H. H. Vreeland, chairman; games, G. W. Rink, chairman.

O. P. Van Sweringen Heard in Morgan Investigation

(*Continued from page 834*)

early in 1929 to take over shares of the various companies and to furnish a corporate instrumentality to provide funds for carrying on.

"We are still expecting to get these railroads together, physically and financially speaking," Mr. Van Sweringen said, "in spite of the many difficulties we have encountered.

"As we were putting these Eastern railroad investments together in Allegheny, we became more and more conscious that we had a lot of railroad investment that, like the average of all railroads of the Eastern Region, had coal as the major commodity carried. About one-half of the tonnage and nearly as many dollars of revenue to the railroads of the Eastern region come from coal. We felt that it would be better if we could have a little more diversity in this respect in our railroad holdings, and, again, we had the time and the forces to direct, and the financial strength, as we thought, to acquire and hold, more than just the Eastern combination.

"We had been studying for a couple of years in a general way the growth of the country and became convinced of the certainty of development of the Southwest, and concluded that if we were to have any more railroad investment we would prefer it in that location. A study of the best railroad investment there,—the one which afforded the greatest opportunity for future growth, development and expansion, and possessing the diversity of basic traffic that we were looking for,—led clearly to the Missouri Pacific System. In the early part of 1929, we began to accumulate its shares, and in the spring of 1930 finished with a majority of them. Soon after we had accomplished these purchases, the country was pitched headlong into the unforeseen depression, the worst the world has ever known. This wrought its accompanying havoc to investments and its violence to Allegheny Corporation.

"Missouri Pacific is now in the first stages of re-organization and when that is done, that system will be one of the best and most prosperous in this country. We knew when we bought control that the railroad needed some capital readjustments, but we also knew that it was headed for some definite betterments that were under way and others that could be put under way to improve its operating ratio. We had expected that the lifting of the top-heavy portion of its structure would be accomplished by putting more of the investment into equity, or stock, by voluntary process rather than as it is finally having to be done. We see nothing to change our minds as to the ultimate desirability of that investment and ownership. Instead of coal, in the Southwest we haul oil and its products, agricultural products, fruits and vegetables. Of course there is a goodly portion of manufactured articles in both regions.

"While we are on this subject of diversity, a peculiar quirk of the present economic situation, contrasting with the belief in that heretofore considered measure of stability, has happened. Our road that is doing the best in the East is the Chesapeake & Ohio with coal making up over 80 per cent of its tonnage. In the Southwest, the road of the Missouri Pacific System that is now showing up to the best advantage is the International-Great Northern, majoring, if you will, in oil, so that wisdom of the past dictating diversity has these striking examples at this time to the contrary, notwithstanding which we are still of the opinion that in ordinary times diversity will be of major importance.

"Right here we would like to stress that there was no thought of consolidating the Chesapeake & Ohio System of the East with the Missouri Pacific System in the West, nor was our conception that of a transcontinental railroad system.

"We hope it is proper, in concluding, to leave one more thought with you. Upon the completion of the Missouri Pacific control purchase, we had reached the place where Allegheny, in a general way, had acquired the properties it was seeking to obtain. There were still improvements and refinements to be made, as well as the rounding out of each of these systems pursuant to the Interstate Commerce Commission plans for them. We have carried forward in the spirit of the Act of Congress of 1920, which decreed that these and all other carriers should unite into a limited number of systems. Our present aim is toward making these properties satisfy, in the highest degree, the public need and service and at the same time produce a just return for the investors who have cast their lot with us."

Mr. Van Sweringen was questioned about the details of the various transactions and on Wednesday brought out what Mr. Pecora said he had been leading up to, that in the transfer of 255,000 shares of C. & O. stock from the Nickel Plate and the Vaness Company to the Chesapeake Corporation an intermediate corporation, the General Securities Corporation, was used, one of the reasons being, he admitted, that this avoided payment of an income tax on an unrealized profit. Mr. Pecora said that this was "perfectly legal" but that he had wanted this illustration to show Congress the mechanics of this "weakness" in the income tax law. He said he expected to show later that this "profit" was "tremendous".

The stock of the Chesapeake Corporation was distributed to the stockholders of the Nickel Plate in effectuation of this divorcement of ownership.

In response to repeated questions as to how much original investment he and his brother and associates had made in their various enterprises Mr. Van Sweringen said they had entered the railroad business in 1916 with $1,000,000, half of which had been subscribed by himself and brother to preferred stock of the Nickel Plate Securities Company, organized to purchase Nickel Plate stock from the New York Central, and half of which was subscribed by others.

Supply Trade

E. M. Hendrickson has been appointed mechanical engineer of the **T-Z Railway Equipment Company** and the **Morris B. Brewster Company,** with headquarters at 310 South Michigan avenue, Chicago. Mr. Hendrickson is a graduate in engineering of Kansas State College, Manhattan, Kan., and served six years in the engineering department of the Union Pacific and two years with the Chicago & North Western.

The entire business and assets of the **Audubon Wire Cloth Company, Inc.,** Audubon, N. J., on May 1 were acquired by the **Manganese Steel Forge Company,** Philadelphia, Pa. The business will be conducted by the **Audubon Wire Cloth Corporation,** a new organization and wholly owned subsidiary of the Manganese Steel Forge Company. The officers of the new corporation are: **L. W. Jones,** president; **L. W. Jones, Jr.,** vice-president and treasurer, and **A. W. Zackey,** secretary.

C. B. Archibald, who has been appointed railroad representative of the **Edison Storage Battery Division** of **Thomas A. Edison, Inc.,** Chicago district office, was graduated from the public schools of Ashland, Wis., in 1917. In June, 1918, he entered the United States Naval Academy at Annapolis, Md., graduating

C. B. Archibald

from the Academy in 1922. He resigned from the Navy upon graduation to enter the employ of the Electric Storage Battery Company. In the service of that company he was successively located at Detroit, Mich., Cincinnati, Ohio, and Philadelphia, Pa. He handled railway battery sales in Cincinnati and in Philadelphia until his recent appointment as railroad representative of the Edison Storage Battery Division of Thomas A. Edison, Inc.

OBITUARY

John Evan Taylor, who was in the copy service department of the Simmons-Boardman Publishing Company, from May, 1921, to August, 1925, died on May 31 at Plainfield, N. J. Since July, 1926, Mr. Taylor had been in the service of the

Central of New Jersey as a mechanical draftsman and as a detail man in its mechanical engineering department, at Elizabethport, N. J., shops.

Joseph J. Tynan, who retired in July, 1932, as vice-president of the Bethlehem Steel Company, with headquarters at San Francisco, Cal., died of heart disease on June 6, at his home in that city. He was 61 years old. Mr. Tynan remained in a consulting and advisory capacity with the company until the time of his death.

George A. Cooper, vice-president of the Frost Railway Supply Company, Detroit, Mich., died on June 1. He was 66 years of age and had been associated with the Frost Railway Supply Company for 28 of the 40 years which he spent in the railway supply business. Mr. Cooper was formerly for a number of years a member of the executive committee of the Railway Supply Manufacturers' Association.

Joseph W. Bettendorf, president of the Bettendorf Company, Bettendorf, Iowa, who died at Davenport on May 17 of heart failure, was born at Leavenworth, Kan.,

Joseph W. Bettendorf

on October 10, 1864, and entered business as a machinist and foreman for the Peru Plow Company. In 1886 he joined his brother, who was establishing a factory for the manufacture of metal wheels and became general superintendent of the business. In 1895 the business was incorporated as the Bettendorf Axle Company and he was made vice-president, secretary and general manager. The business was soon expanded to include the railway field, the company making car parts, brake beams and bolsters. Upon the death of his brother in 1910, J. W. Bettendorf succeeded him as president and treasurer. Since 1906 the company has been making freight cars. At the time of his death, Mr. Bettendorf was also president of the Bettendorf Water Company, the Bettendorf Light & Power Company, the Micro Machine Company, the Zimmerman Steel Company and the Westco-Chippewa Pump Company.

Charles Carroll Peirce, for 39 years connected with the General Electric Company, and who as the company's former New England district manager of transportation, was the first man to install electric power on a steam railroad, died May 27. He was 68 years old. Mr. Peirce was born in Skowhegan, Me. After attending the Massachusetts Institute of Technology for two years he entered the employ of the Old Colony Steamboat Company in 1884. Six years later he became connected with

Charles Carroll Peirce

the Edison-General Electric Company. When this company was merged with the Thomson-Houston Company in 1892 he became manager of the railroad department of the General Electric Company. It was in that capacity that he had charge of the electrification of the Nantasket Beach Railroad. He retired from active work two years ago.

Frank LaMonte Dodgson, consulting engineer of the General Railway Signal Company, died in Rochester, N. Y., on June 6. Mr. Dodgson was born at Batavia, N. Y., on September 21, 1866 and was graduated in civil engineering from Cornell University in 1889. For several years then he was connected with the engineering department of the City of Rochester. He was engaged in the engineering department of the Toronto, Hamilton & Buffalo during construction and, being a constant student of all railroad arts, he invented numerous

Frank LaMonte Dodgson

signalling devices and was a pioneer in the construction, and, being a constant student He became connected with the Railway Electrical & Automatic Pneumatic Signal Company, with which company he was (1897) chief engineer at Troy, N. Y. He constructed an all-pneumatic interlocking plant on the New York Central at Buffalo about 1898, which was in successful service many years. Later, while with the Standard Signal Company, he supervised the installation of an extensive all-air plant at the Grand Central Terminal at New York City, which remained in service until superseded in 1907 by all-electric interlocking on the enlargement of the terminal to the present elaborate two-level station. The Dodgson (all-air) interlocking was patented in 1905 and was successfully used on the Lake Shore & Michigan Southern and the Pennsylvania Lines west of Pittsburgh. The Railway Electrical & Automatic Pneumatic Signal Company was merged with the Standard Signal Company in 1902 to form the Pneumatic Signal Company. This company established its factory at Rochester, N. Y., and he was consulting engineer. In 1904, he assumed a similar office with the General Railway Signal Company which was a consolidation of the Pneumatic Signal Company and the Taylor Signal Company, of Buffalo. He subsequently did pioneer work installing signals in England, Germany and Argentina. He was a leading member of the Railway Signal Association and later of the Signal Section of the American Railway Association.

Equipment and Supplies

FREIGHT CARS

THE CHICAGO GREAT WESTERN has ordered 500 steel box cars of 50 tons' capacity from the Pullman Car & Manufacturing Corporation.

IRON AND STEEL

THE MICHIGAN CENTRAL is inquiring for 320 tons of structural steel for a viaduct at Detroit, Mich.

THE SOUTHERN PACIFIC is inquiring for 250 tons of structural steel for a viaduct at Naples, Cal.

THE ELGIN, JOLIET & EASTERN has ordered 2,400 tons of structural steel for a vertical lift span over the Illinois waterway at Joliet, Ill., from the American Bridge Company.

THE NEW YORK CENTRAL has ordered 5,000 tons of rail from the United States Steel Corporation, 2,000 tons from the Bethlehem Steel Company and 1,290 tons from the Inland Steel Company.

MISCELLANEOUS

THE PENNSYLVANIA announces that air conditioned coaches, dining cars, and parlor cars will be operated in its New York-Washington service. For this purpose special air condition apparatus has just been installed in 91 additional cars which have been assigned to this service; they consist of 35 coaches, 17 smoking cars, 34 parlor cars and 5 dining cars. Sleeping cars will be pre-cooled at all of the Pennsylvania's principal terminals, the same as was done last summer.

Financial

ALTON.—*Abandonment.*—This company and the Louisiana & Missouri River have applied to the Interstate Commerce Commission for authority to abandon a line between Fulton, Mo., and South Cedar City, 24 miles.

ATCHISON, TOPEKA & SANTA FE.—*Reduces Preferred Dividend.*—The directors of this company have declared a semi-annual dividend of $1.50 on its 5 per cent preferred stock instead of the customary $2.50.

BOSTON & MAINE.—*Bonds.*—The Interstate Commerce Commission has authorized this company to issue notes for $1,000,000 to the Railroad Credit Corporation to evidence a loan and to pledge as collateral security therefor $2,175,000 of its first mortgage 6 per cent bonds, series LL.

CHICAGO, ROCK ISLAND & PACIFIC.—*Reorganization Petition Filed.*—The Interstate Commerce Commission on June 7 made public copy of a petition filed by this company in the federal district court at Chicago stating that it was unable to meet its indebtedness as it matured and desired to effect a reorganization. The petition stated that between June 27 and July 15 interest on various obligations amounting to $2,259,711 will mature, and in addition in March and April, 1934, there will mature obligations totalling $144,303,700, including $4,125,000 of bank loans, $13,718,700 of loans from the Reconstruction Finance Corporation, and various bond issues. The Reconstruction Finance Corporation had declined to authorize a loan to meet the interest maturities.

DELAWARE, LACKAWANNA & WESTERN.—*Collateral.*—In the *Railway Age* of May 27 authority for this company to issue $500,000 of notes to the Railroad Credit Corporation was announced, along with the pledge of $2,343,000 of bonds as collateral. For this particular loan only $500,000 additional collateral was required, the company having already on deposit $1,843,000 of bonds securing a previous loan of $1,000,000. It thus has total collateral of $2,340,000 securing loans of $1,500,000.

DETROIT, TOLEDO & IRONTON.—*Bonds.*—The Interstate Commerce Commission has authorized this company to pledge not exceeding $100,000 of its first mortgage, 50-year 5 per cent bonds as collateral security for notes which may be issued under the terms of section 20a (9) of the Interstate Commerce Act. It is also authorized to pledge not exceeding $2,000,000 of 5 per cent first and refunding mortgage bonds, series A, as collateral security for notes.

GAINESVILLE MIDLAND.—*R. F. C. Loan Denied.*—Upon further consideration of the application of the receivers for a loan of $55,105 from the Reconstruction Finance Corporation and of a supplemental application, Division 4 of the Interstate Commerce Commission has denied its approval of the loan and cancelled a certificate previously issued for a loan of $25,000. The R. F. C. had approved a loan of $10,539 of the amount but no advance had been made and the commission now finds itself unable to find that the corporation would be adequately secured.

MAINE CENTRAL.—*Abandonment.*—The Interstate Commerce Commission has authorized this company to abandon portions of branch lines in Maine as follows: 10.5 miles from Woodland Jct. to Princeton; 10.8 miles from Oquossoc to Kennebago; and 51.4 miles from Austin Jct. to Kineo Station. The necessity for the abandonment arises largely from highway competition, although a decline in lumbering also contributed to the loss of traffic.

MERIDIAN & BIGBEE RIVER.—*Reorganization Proposed.*—This company has filed in the federal district court for the southern district of Mississippi a petition stating that it is unable to meet its debts and desires to effect a plan of reorganization. The Interstate Commerce Commission has added the name of W. E. Hopkins, of Meridian, Miss., president of the company, to its panel of standing trustees from which appointments may be made by the court.

MISSOURI PACIFIC.—*Reorganization.*—The Supreme Court of the United States has denied a motion filed by B. W. Lansdown and others for a writ of mandamus directed to Judge Faris and the federal district court at St. Louis ordering them to show cause why a trustee should not be appointed for the Missouri Pacific.

ST. LOUIS-KANSAS CITY SHORT LINE.—*R. F. C. Loan Denied.*—The Interstate Commerce Commission has denied approval of this company's application for a loan of $35,000,000 from the Reconstruction Finance Corporation to build a new electric railway between St. Louis and Kansas City, Mo.

ST. LOUIS SOUTHWESTERN OF TEXAS.—*Abandonment.*—This company and the Stephenville North & South Texas have applied to the Interstate Commerce Commission for authority to abandon the line of the latter from Hamilton, Tex., to Stephenville, 41 miles, and from Edson to Comanche, 31 miles.

SEABOARD AIR LINE.—*Abandonment.*—The Interstate Commerce Commission has authorized this company and its receivers to abandon a branch line extending from St. Marks Junction, Fla., easterly to Leonton, 20.8 miles.

SEABOARD AIR LINE.—*Surrender of Leased Line Proposed.*—The receivers have applied to the Interstate Commerce Commission for authority for the cessation of operation of the property of the Georgia, Florida & Alabama, a leased line extending from Richland, Ga., to Carrabelle, Fla., 181 miles, with a branch of 11 miles. The application said the court had directed the receivers to disaffirm the lease and surrender the line to the G. F. & A. company for operation.

SOUTHERN NEW YORK.—*Abandonment.*—This company has applied to the Interstate Commerce Commission for authority to abandon its line from Warren, N. Y., to Mohawk, 9.09 miles.

SOUTHERN PACIFIC.—*Tentative Valuation of Texas and Louisiana Lines.*—Division I of the Interstate Commerce Commission has issued a tentative valuation report covering the properties of the Texas & New Orleans and other Southern Pacific lines in Texas and Louisiana as of December 31, 1931, because of their application for authorization of a consolidation. The report covers the properties of 14 corporations, collectively referred to as the Texas & New Orleans system, which were the applicants for authority to consolidate into one corporation, and also the Southern Pacific Terminal Company and the Texas State Railroad, not included in the proposed plan of consolidation. The approximate original cost to date of the carrier properties used by the system, exclusive of lands, rights, and assessments for public improvements, was placed at $256,684,750 and the investment in road and equipment, including land, as stated in the books, was placed at $291,157,155. With readjustments required by the accounting examination this would be reduced to $278,953,525. The total final value for rate-making purposes was stated as $251,078,868 and that of the corporations included in the consolidation plan as $227,790,000.

U. S. Fails to Control Trucks, Enlarges Highway Aid

What the U. S. railway companies would prefer, no doubt, would be the restoration of traffic lost through what they considered unfair competition, competition, that is to say, which is inadequately regulated and is, in a sense, subsidized out of the proceeds of taxation, while the railways themselves are the heaviest, or among the heaviest, taxpayers. The principal objection to the Roosevelt program so far as railway reconstruction is concerned is that it does not provide for traffic improvement. Other measures may, and, indeed, are so intended; but here again there is a disturbing feature from the standpoint of rail transportation in the appropriation of some $400,000,000 for road betterment. All these things, taken into conjunction with a fixed minimum of railway employment, give the official program a quality of uncertainty which is likely to remain until there occurs a general upturn in business which will relieve the railways of the necessity of making ends meet, or endeavoring to make ends meet, with one important avenue of economy closed against them by statute.

From the Montreal Gazette

Average Prices of Stocks and of Bonds

	June 6	Last week	Last year
Average price of 20 representative railway stocks..	39.93	39.29	14.20
Average price of 20 representative railway bonds..	68.52	66.27	53.16

Dividends Declared

Atchison, Topeka & Santa Fe.—Preferred, $1.50, payable August 1 to holders of record June 30. This company previously paid semi-annual dividends of $2.50.

Beech Creek.—50c, quarterly, payable July 1 to holders of record June 15.

Morris & Essex.—1¾ per cent, payable July 1 to holders of record June 6.

New York & Harlem.—$2.50, semi-annually; payable July 1 to holders of record June 15. Preferred, $2.50, semi-annually, both.

Old Colony.—$1.75, quarterly, payable July 1 to holders of record June 17.

Philadelphia, Baltimore & Washington.—$1.50, semi-annually, payable June 30 to holders of record June 15.

Pittsburgh, Bessemer & Lake Erie.—6 Per Cent Preferred, $1.50, semi-annually, payable December 1 to holders of record November 15.

Pittsburgh, McKeesport & Youghiogheny.—$1.50, semi-annually, payable July 1 to holders of record June 15.

West Jersey & Seashore.—Common, $1.50, semi-annually, payable July 1 to holders of record June 15.

Construction

BOSTON & ALBANY.—The New York Public Service Commission has affirmed an order directing the elimination of the Third street and Tanners lane crossings of this road in Hudson, Columbia county, N. Y. The order provides that the Third street crossing is to be eliminated by raising the street and carrying it over the railroad and the Tanners lane crossing by closing the thoroughfare across the right of way of the railroad.

CHICAGO, MILWAUKEE, ST. PAUL & PACIFIC.—A contract has been awarded to the Thorgerson & Ericksen Company, Chicago, for work in connection with the enlargement of this company's Western Avenue enginehouse at Chicago. The work, which will cost about $45,000, will include the tearing down and reconstruction of stalls 19 to 26, inclusive, of the enginehouse.

MISSOURI-KANSAS-TEXAS OF TEXAS.—A contract has been awarded to the Henger & Chambers Company, Dallas, Tex., for rearranging the first floor of this company's general office building at Dallas, at a cost of $50,100.

NEW YORK CENTRAL.—The New York Public Service Commission has directed that the West Main street crossing of this road in Watertown, N. Y., be eliminated. This is to be accomplished by depressing the street and carrying it under the raised grade of the railroad at a point about 315 ft. north of the present crossing. The changed grade of the railroad is to meet the existing grade about 940 ft. north of the crossing. The estimated cost of the elimination is $146,600 exclusive of land and property damages.

WABASH.—This company, the county of St. Louis and the Missouri State Highway Commission, have asked the Missouri Public Service Commission to authorize the construction of an underpass to carry state highway No. 77 under the tracks of the Wabash near Robertson, Mo. The estimated cost of the project, which will be shared by the railroad and the state, is $60,000.

Railway Officers

EXECUTIVE

George W. Gentle, chief clerk in the office of **R. S. Marshall,** vice-president of the Chesapeake & Ohio and Pere Marquette at Cleveland, Ohio, has been promoted to assistant to vice-president in the same office.

C. Haile, Jr., executive general agent of the Missouri-Kansas-Texas, with headquarters at Houston, Tex., has been appointed executive representative at New York, and his former position has been abolished.

George R. Martin, vice-president, executive department, of the Great Northern, with headquarters at Minneapolis, Minn., retired on June 1, after 48 years railway service. Mr. Martin was born on July 3, 1864, at Evans Mills, N. Y., and attended the United States Military Academy at West Point, N. Y., and later the University of Minnesota law school from which he received the degree of LL.M. in 1903. Mr. Martin first entered railway service in 1885 as a telegraph operator and agent on the Chicago & North Western, and two years later went with the Minneapolis, St. Paul and Sault Ste. Marie as a station agent, later serving this company as a train dispatcher and chief clerk to superintendent. In 1890, he entered the accounting department of the Great Northern, becoming assistant auditor of disbursements after four years. From January to March, 1897, he

George R. Martin

served as a special superintendent on the same road and was then appointed general superintendent of the Montana Central, a subsidiary of the Great Northern. In the following year, Mr. Martin returned to the operating department of the Great Northern as general superintendent, and in 1899 he resumed his connection with the accounting department as auditor of disbursements. He was advanced to general auditor in 1902 and from January to May, 1905, he was on special duty in the office of the president, then being appointed assistant to the comptroller. In 1906 he was made assistant comptroller and after five years in this position he was further advanced to comptroller, which position he held until 1916 when he was made vice-president and comptroller. At the end of four years he was elected vice-president, executive department, holding this position until his retirement.

FINANCIAL, LEGAL AND ACCOUNTING

H. F. Lohmeyer, assistant secretary of the Chesapeake & Ohio and the Pere Marquette, has been appointed secretary and treasurer of these companies, with headquarters at Cleveland, Ohio, to succeed **Arthur Trevvett,** deceased. **H. C. Strong,** assistant cashier at Cleveland, has been promoted to assistant treasurer with the same headquarters, to succeed Mr. Lohmeyer, and **A. M. Waldron,** cashier at Cleveland, has been appointed to the newly-created position of assistant treasurer at that point.

OPERATING

The Detroit division of the Michigan Central has been extended to include the Northern division with the exception of the Rives Jct., Mich.,-Bay City branch, and the Michigan division has been established, consisting of the Middle division and the Rives Jct.-Bay City branch. **E. E. Wright,** superintendent of the Detroit division and the Detroit terminals, with headquarters at Detroit, Mich., remains as superintendent of the enlarged Detroit division, and **J. E. Schwender,** superintendent of the Northern division, with headquarters at Bay City, Mich., has been transferred to the Canada division, with headquarters at St. Thomas, Ont. Mr. Schwender succeeds **Frank McElroy,** who has been appointed to the newly-created position of assistant to the general superintendent, with headquarters at Detroit. **D. J. Hackett,** superintendent of the Middle division, has been appointed superintendent of the newly-created Michigan division, with headquarters as before at Jackson, Mich.

F. N. Reynolds, superintendent of the Indianapolis terminal of the Cleveland, Cincinnati, Chicago & St. Louis, at Indianapolis, Ind., has been promoted to the newly-created position of general superintendent with the same headquarters. Effective June 1, the six operating divisions of the Big Four, together with the Cincinnati and Indianapolis terminals, were consolidated into three divisions, known as the Ohio, Indiana and Illinois divisions. The Ohio division embraces the former Cleveland-Indianapolis division, except that part north of Anderson, Ind.; the former Cincinnati-Sandusky division; and the old Northern-Springfield division, except the line between Indianapolis and Springfield, Ohio. The new Indiana division includes the former Chicago division; that part of the old Cleveland-Indianapolis division north of Anderson, Ind.; that part of the Northern-Springfield division between

Springfield and Indianapolis; and the Cincinnati and Indianapolis terminals. The Illinois division embraces the former St. Louis-Terre Haute division and that part of the old Cairo division south of the south switch of the Lyons, Ill., yard. **T. J. Hayes,** superintendent of the Cleveland-Indianapolis division, with headquarters at Bellefontaine, Ohio, has been appointed superintendent of the new Ohio division, with the same headquarters. **D. F. Schaff,** superintendent of the Chicago division, has been appointed superintendent of the new Indiana division, with headquarters as before at Indianapolis, and **H. F. Milligan,** superintendent of the St. Louis-Terre Haute division, has been appointed superintendent of the newly-created Illinois division, with headquarters as before at Mattoon, Ill. **E. F. Hayes,** superintendent of the Cincinnati-Sandusky division, with headquarters at Springfield; and **J. V. Kennedy,** superintendent of the Northern-Springfield division at Van Wert, Ohio, have been appointed assistant superintendents of the Ohio division, with the same headquarters. **E. H. Ziegler,** assistant superintendent of the Chicago division at Indianapolis; **William Davis,** assistant superintendent of the Indianapolis terminal; and **S. V. Bevington,** superintendent of the Cincinnati, Ohio, terminal, have been appointed assistant superintendents of the Indiana division, with the same headquarters. **E. M. Kelley,** superintendent of the Cairo division, with headquarters at Evansville, Ind., has been appointed assistant superintendent of the Illinois division, with headquarters at Mattoon, Ill.

TRAFFIC

B. E. Smeed, assistant general freight agent for the Minneapolis, St. Paul & Sault Ste. Marie, at Chicago, has been appointed general agent, passenger and freight traffic, at New York.

J. H. Arnold, general agent on the St. Louis Southwestern, at Memphis, Tenn., has been transferred to St. Louis, Mo., to succeed **J. K. James,** assistant general freight agent, who has been transferred to the general staff at St. Louis, with the same title.

William Phillips, manager of the industrial department of the Canadian National, retired from service on May 31. Mr. Phillips entered railroad service in 1885, with the Grand Trunk (now a part of the C. N. R.). **C. S. Gzowski,** chief engineer of construction, has also been appointed acting manager of the industrial and natural resources department.

P. R. Flanagan, general freight and passenger agent of the Chicago Great Western, has been appointed to the newly-created position of assistant traffic manager, with headquarters at Chicago, and the position of general freight and passenger agent has been abolished. **B. R. Harris,** assistant general freight agent, has been promoted to the newly-created position of general freight agent at Chicago, to assume a portion of the duties relinquished by Mr. Flanagan. **R. G. Hawkinson,** chief clerk in the general freight office at Chicago, has been advanced to assistant general freight agent at the same point, to succeed Mr. Harris.

J. M. Horn, general freight agent of the Canadian National, has been appointed assistant freight traffic manager, and **W. Hately,** assistant general freight agent has been appointed general freight agent. **F. G. Adams,** chief of tariff bureau has been appointed assistant general freight agent, and **C. E. Truscott** has been appointed chief of tariff bureau. All will have headquarters at Winnipeg, Man.

Edward Hart, Jr., assistant freight traffic manager of the Baltimore & Ohio, has been appointed freight traffic manager, a new position, of that road and the Alton, with headquarters at Chicago, as before. The position of assistant freight traffic manager has been abolished. **S. A. Williams,** freight traffic manager of the Alton has been appointed general western freight agent, also a new position, of the Baltimore & Ohio and the Alton, with headquarters at Chicago, as before, and his former position has been abolished.

ENGINEERING AND SIGNALING

J. W. Pfau, assistant chief engineer of the New York Central, Lines Buffalo and East, has been appointed acting chief engineer with headquarters at New York as before, succeeding **F. B. Freeman** who has been furloughed on account of ill health.

Effective June 1, the six operating divisions of the Cleveland, Cincinnati, Chicago & St. Louis were consolidated into three, known as the Ohio, Indiana and Illinois divisions. **J. E. Kissell,** division engineer of the Cleveland-Indianapolis division, has been appointed to the same position on the newly-created Ohio division, with headquarters as before at Bellefontaine, Ohio. **W. B. Hodge,** division engineer of the Chicago division, has been appointed division engineer of the new Indiana division, with headquarters as before at Indianapolis, Ind., and **E. H. McGovern,** division engineer of the St. Louis-Terre Haute division, has been appointed to the same position on the Illinois division, with headquarters as before at Mattoon, Ill. **L. B. Elliott,** division engineer of the Cincinnati-Sandusky division, with headquarters at Springfield, Ohio, has been appointed assistant division engineer of the Ohio division, with headquarters at Bellefontaine. **C. W. Engle,** division engineer of the Northern-Springfield division, with headquarters at Van Wert, Ohio, has been appointed assistant division engineer of the Indiana division, with headquarters at Indianapolis, Ind., and **E. J. Bayer,** division engineer of the Cairo division, with headquarters at Danville, Ill., has been appointed assistant division engineer of the Illinois division, with headquarters at Mattoon, Ill.

MECHANICAL

M. McCaskill has been appointed master mechanic of the Columbus & Greenville, with headquarters at Columbus, Miss., to succeed **T. M. Pullen,** deceased.

W. M. Wheatley, general car inspector of the Chesapeake & Ohio, with headquarters at Columbus, Ohio, has been appointed superintendent car department with headquarters at Cleveland, Ohio.

C. E. Melker, master mechanic of the Hannibal division of the Chicago, Burlington & Quincy, with headquarters at Hannibal, Mo., has had his jurisdiction extended to include the Centerville division, and **H. E. Logan,** master mechanic of the latter division, with headquarters at Centerville, Iowa, has been appointed road foreman of engines, with headquarters at St. Joseph, Mo. **D. R. Sweney,** road foreman of engines at Chicago, has been appointed chief smoke inspector with the same headquarters, to succeed **George T. Beck,** who has been assigned to other duties.

OBITUARY

Liston B. Burns, assistant to the general manager of the Seaboard Air Line, died on June 2, at Norfolk, Va.

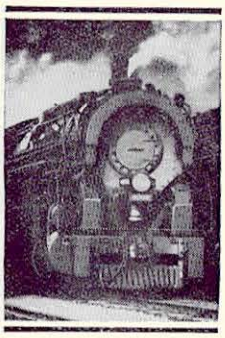
Fred Geissler, general passenger agent of the Seaboard Air Line, died at Atlanta, Ga., on May 24, after an illness of several months. He was 52 years of age and had been connected with the S.A.L. for 33 years, serving as general passenger agent since March 1, 1931.

William B. Doddridge, formerly general manager of the Missouri Pacific, died at his home in Birmingham, Ala., on June 6, after a long illness. Mr. Doddridge was born at Circleville, Ohio, on October 19, 1848, and entered railway service in 1866, with the Pittsburgh, Columbus & Cincinnati as telegraph operator. Mr. Doddridge became general manager of the Missouri Pacific in May, 1893, and retired on March 1, 1900. Later he was active independently as a consulting railway expert.

OLIVER STANLEY, who has been undersecretary at the Home Office in the National Government of Great Britain, has been appointed minister of transport to succeed P. J. Pybus who resigned recently after holding the position since 1931. Mr. Stanley, who is the younger son of the Earl of Derby, has been a member of Parliament since 1924 when he was elected as a Conservative from Westmorland. He was born in 1896, educated at Eton and called to the bar in 1919.

WELDED PIPING FOR BUILDINGS.—A booklet entitled "Facts About Welded Piping for Buildings," designed to appeal to architects and construction engineers, as well as to officers in charge of the use and maintenance of building pipe installations, has been issued by the Air Reduction Sales Company, New York. The booklet, which is well illustrated, presents clearly the salient facts concerning the advantages of welded piping installations.

Tables of Revenues and Expenses of Railways begin on next left-hand page



NEW MOTIVE POWER IS YOUR BEST INVESTMENT

- 83% of the locomotives on Class 1 roads are more than 10 years old.
- Modern locomotives make operating economies ranging from 20% to 35% compared with engines only 10 years old, and relatively greater economies compared with older engines.
- The older locomotives even if in good mechanical condition are money wasters, exacting a continuing excess charge against the cost of operation.
- New Motive Power is your best investment.

LIMA LOCOMOTIVE WORKS

INCORPORATED
LIMA, OHIO

LIMA LOCOMOTIVE WORKS INCORPORATED

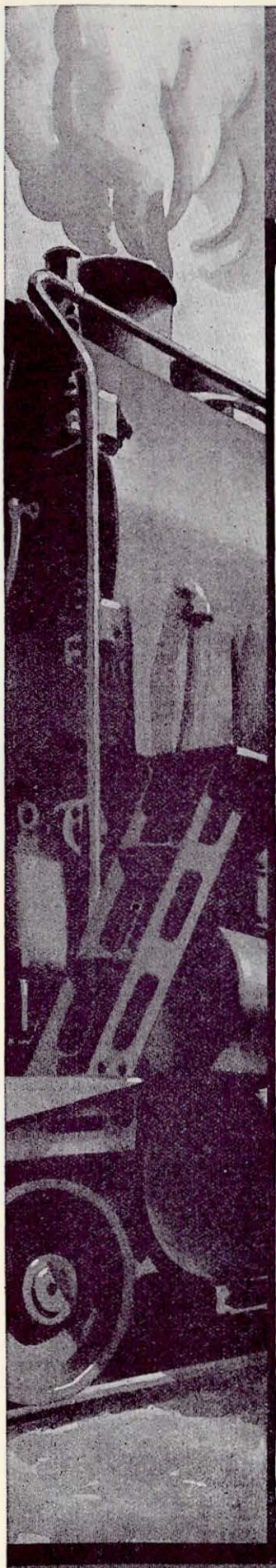
Revenues and Expenses of Railways

MONTH OF APRIL AND FOUR MONTHS OF CALENDAR YEAR 1933

Name of road		Av. mileage operated during period	Operating revenues: Freight	Passenger	Total (inc. misc.)	Operating expenses: Maintenance of Way and structures	Maintenance of Equipment	Traffic	Transportation	General	Total	Operating ratio	Net from railway operation	Operating income	Net railway operating income	Net ry. operating income, 1932
Akron, Canton & Youngstown	April	171	$106,054	$14	$111,025	$16,707	$11,535	$7,358	$32,814	$7,484	$74,374	67.0	$36,651	$25,437	$18,600	$11,777
	4 mos.	171	403,112	79	424,937	48,538	45,167	34,869	141,587	39,496	305,671	71.9	119,266	74,405	43,515	89,105
Alton	April	979	756,271	118,427	1,012,369	151,512	127,858	44,376	403,093	36,587	769,874	76.0	242,495	189,869	67,130	—66,197
	4 mos.	979	2,893,445	504,629	3,900,696	398,133	500,218	186,053	1,667,829	184,310	2,984,249	76.5	916,447	551,032	95,679	50,419
Alton & Southern	April	31	.....	.....	76,971	6,840	5,239	4,855	25,023	3,963	45,920	59.66	31,051	25,843	21,417	12,160
	4 mos.	31	.....	.....	294,299	23,671	24,210	19,556	106,903	16,827	191,167	64.96	103,132	83,356	65,349	67,406
Atchison, Topeka & Santa Fe	April	9,734	6,030,378	701,527	7,451,018	1,184,688	1,764,359	312,533	2,716,646	382,511	6,360,426	85.4	1,090,592	252,367	370,289	880,516
	4 mos.	9,735	21,755,093	3,155,497	27,549,992	3,637,839	7,490,182	1,230,086	11,028,321	1,513,063	24,899,620	90.4	2,650,372	—798,586	—550,335	2,741,155
Gulf, Colorado & Santa Fe	April	1,955	795,674	30,177	903,053	195,067	233,015	50,353	373,081	62,942	914,476	101.3	—11,423	—97,154	—189,740	—103,317
	4 mos.	1,955	3,240,045	138,239	3,637,975	761,325	952,229	198,384	1,507,890	258,549	3,677,826	101.1	—39,851	—384,371	—793,523	—220,251
Panhandle & Santa Fe	April	1,878	564,525	17,054	632,240	142,594	132,381	18,059	197,842	33,252	524,054	82.9	108,186	64,294	—9,717	—143,907
	4 mos.	1,878	2,122,285	78,222	2,380,270	438,212	573,043	71,000	794,665	127,880	2,004,251	84.2	376,019	201,246	—112,899	—248,657
Atlanta & West Point	April	93	66,744	13,104	92,408	17,442	21,784	6,830	46,854	7,044	101,960	110.3	—9,552	—18,550	—30,748	—22,686
	4 mos.	93	256,704	58,020	373,150	69,851	92,602	27,300	185,927	27,123	410,516	110.0	—37,366	—72,086	—116,917	—88,450
Western of Alabama	April	133	82,985	13,197	103,007	21,106	28,653	6,919	39,652	6,933	104,987	101.9	—1,980	—9,404	—7,543	—20,506
	4 mos.	133	296,811	61,153	399,465	76,907	116,935	27,609	158,727	27,264	413,889	103.6	—14,424	—44,125	—26,238	—55,131
Atlanta, Birmingham & Coast	April	639	199,001	3,105	229,310	36,215	39,258	20,133	87,993	14,085	208,378	90.8	20,932	7,368	—10,998	—55,998
	4 mos.	639	697,819	12,831	820,286	145,724	156,638	76,996	345,781	58,701	826,715	100.7	—6,429	—61,227	—115,339	—293,455
Atlantic Coast Line	April	5,144	3,051,976	435,964	3,836,054	412,718	559,582	113,043	1,208,294	127,800	2,451,883	63.9	1,384,171	883,696	671,449	351,666
	4 mos.	5,144	11,366,569	2,190,811	15,053,965	1,679,072	2,325,368	456,975	4,885,366	512,337	9,989,614	66.4	5,064,351	3,160,885	2,482,161	1,563,479
Charleston & Western Carolina	April	342	184,677	1,149	190,290	19,019	13,939	5,926	52,603	4,693	96,180	50.5	94,110	77,041	73,503	38,179
	4 mos.	342	599,447	3,806	618,193	78,027	83,054	22,622	201,297	17,692	402,692	65.1	215,501	148,363	140,178	77,489
Baltimore & Ohio	April	6,404	7,825,749	635,051	9,128,831	823,396	1,583,078	326,087	3,302,232	521,790	6,634,921	72.7	2,493,910	1,824,783	1,479,223	1,147,378
	4 mos.	6,402	30,235,540	2,428,306	35,145,292	2,677,155	6,194,756	1,302,585	13,256,386	2,116,128	25,866,034	73.6	9,279,258	6,454,621	5,290,619	5,621,581
Baltimore & Ohio Chic. Term	April	84	.....	.....	228,478	14,679	27,803	1,526	124.901	10,486	184,065	80.6	44,413	2,606	81,820	70,006
	4 mos.	84	.....	.....	945,114	68,746	150,029	6,044	531,723	55,950	832.079	88.0	113,035	10,886	355,990	330,717
Staten Island Rapid Transit	April	23	53,783	81,613	142,534	6,956	11,120	1,627	71,096	11,949	102,748	72.1	39,786	26,236	10,367	6,596
	4 mos.	23	206,194	314,388	545,493	27,310	46,798	6,526	301,666	46,782	429,082	78.7	116,411	55,596	—14,237	—19,275
Bangor & Aroostook	April	619	569,809	22,185	613,630	80,853	71,614	3,931	113,562	24,625	295,167	48.1	318,463	257,289	251,213	368,348
	4 mos.	619	2,423,487	91,334	2,597,137	303,194	337,622	17,143	499,850	95,283	1,255,446	48.3	1,341,691	1,096,860	1,012,050	1,110,300
Belt Ry. Co. of Chicago	April	54	.....	.....	302,959	19,882	26,668	2,528	129,125	8,481	186,684	61.6	116,275	75,416	140,841	74,814
	4 mos.	54	.....	.....	1,117,445	62,224	116,837	10,457	551,873	39,004	780,395	69.8	337,050	168,729	506,781	293,835
Bessemer & Lake Erie	April	225	312,197	856	319,863	27,207	169,327	9,811	85,514	29,775	321,615	100.5	—1,752	—26,890	—21,343	—83,642
	4 mos.	225	798,281	3,669	829,182	93,718	662,181	40,570	337,275	126,548	1,260,271	152.0	—431,089	—521,602	—463,843	—555,449
Boston & Maine	April	2,081	2,179,076	483,492	3,156,491	374,690	484,785	58,644	1,265,269	162,452	2,351,885	74.5	804,606	573,945	425,432	655,342
	4 mos.	2,081	8,385,751	2,105,407	12,479,433	1,523,828	2,048,429	235,310	5,229,705	682,499	9,749,928	78.1	2,729,505	1,861,781	1,379,049	2,324,155
Brooklyn Eastern Dist. Term	April	11	72,724	.....	73,656	3,813	8,367	145	21,384	5,836	39,545	53.7	34,111	27,614	27,614	25,330
	4 mos.	11	250,372	.....	253,722	20,284	27,043	885	84,308	26,242	158,762	62.6	94,960	69,735	69,735	99,691
Burlington-Rock Island	April	280	53,896	704	57,923	8,335	9,898	3,084	41,881	7,383	70,581	121.9	—12,658	—17,592	—26,083	—30,989
	4 mos.	280	233,187	2,401	249,651	38,050	38,232	12,548	147,284	28,647	264,761	106.1	—15,110	—35,311	—75,614	—54,660
Cambria & Indiana	April	37	90,785	.....	90,984	6,623	43,319	397	10,567	7,681	68,587	75.38	22,397	11,784	53,787	73,018
	4 mos.	37	414,095	.....	414,896	22,528	163,150	1,543	45,974	30,050	263.245	63.44	151,651	90,973	330,057	305,947
Canadian Pac. Lines in Maine	April	233	112,620	12,194	135,151	23,836	26,437	4,131	58,270	4,117	116,791	86.4	18,360	10,358	—11,460	—14,908
	4 mos.	233	627,019	57,711	727,739	74,090	134,033	16,888	283,192	15,410	523,613	71.9	204.126	172,124	84,626	61,961
Canadian Pac. Lines in Vermont	April	85	41,913	9,568	65,920	7,400	17,183	1,971	49,988	2,603	79,145	120.0	—13,225	—18,725	—36,084	—18,788
	4 mos.	85	149,764	40,597	245,044	48.372	69,652	7,679	202,145	10,282	338,130	138.0	—93,086	—115,089	—184,263	—150,335
Central of Georgia	April	1,944	803,632	72,769	992,156	132,758	204,803	49,355	399,014	68,634	858,974	86.6	133,182	36,255	22,181	42,053
	4 mos.	1,944	2,866,765	322,918	3,626,642	447,049	781,716	191,309	1,562,001	270,112	3,272,354	90.2	354,288	—32,742	—136,766	97,640
Central New Jersey	April	691	1,508,398	323,071	1,985,040	163,373	414,430	40,016	827,395	91,367	1,549,799	78.1	435,241	134,644	77,479	463,663
	4 mos.	691	6,628,735	1,328,892	8,526,346	602,704	1,576,179	154,614	3,475,080	375,650	6,233,901	73.1	2,292,445	1,412,714	1,126,592	1,564,174
Central Vermont	April	457	288,690	26,726	355,591	75,480	82,547	13,613	168,875	20,569	361,038	101.5	—5,447	—21,030	—27,870	4,921
	4 mos.	457	1,098,557	140,244	1,402,110	218,691	336,361	55,036	694,590	80,270	1,385,226	98.8	16,884	—45,655	—49,957	18,778
Chesapeake & Ohio	April	3,144	6,869,084	181,240	7,330,160	749,471	1,365,745	156,824	1,719,993	269,157	4,273,171	58.3	3,056,989	2,299,252	2,122,547	2,199,957
	4 mos.	3,144	28,287,433	695,388	30,022,963	3,370,420	5,578,191	604,026	7,204,968	1,128,093	17,934,356	59.7	12,088,607	9,054,443	8,795,348	9,266,772
Chicago & Eastern Illinois	April	938	673,889	67,833	831,659	102,285	132,351	50,764	393,371	54,047	738,811	88.8	92,848	17,345	—99,030	—228,596
	4 mos.	938	2,979,563	281,186	3,613,682	465,574	576,271	208,116	1,669,325	220,807	3,163,361	87.5	450,321	98,689	—381,011	—533,009

Continued on next left-hand page

60,000 FRANKLIN WEDGES ARE HOLDING MAINTENANCE DOWN



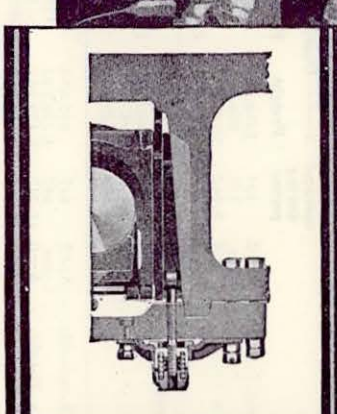
KEEP out slack and you keep out trouble.

Any play between driving box and pedestal soon accumulates until every revolution of the drivers brings a hammer blow to the whole running gear.

Close machining and careful wedge adjustment can't keep out the last fractional inch of slack. It must be left to allow for expansion as box temperature rises.

But Franklin Automatic Adjustable Wedges are set to eliminate any slack, and as driving boxes warm up, the automatic adjustment which takes place constantly provides for expansion without letting slack creep in.

All over the country locomotives are running longer between shoppings by reason of the Franklin Automatic Adjustable Wedge.



FRANKLIN RAILWAY SUPPLY COMPANY, Inc.

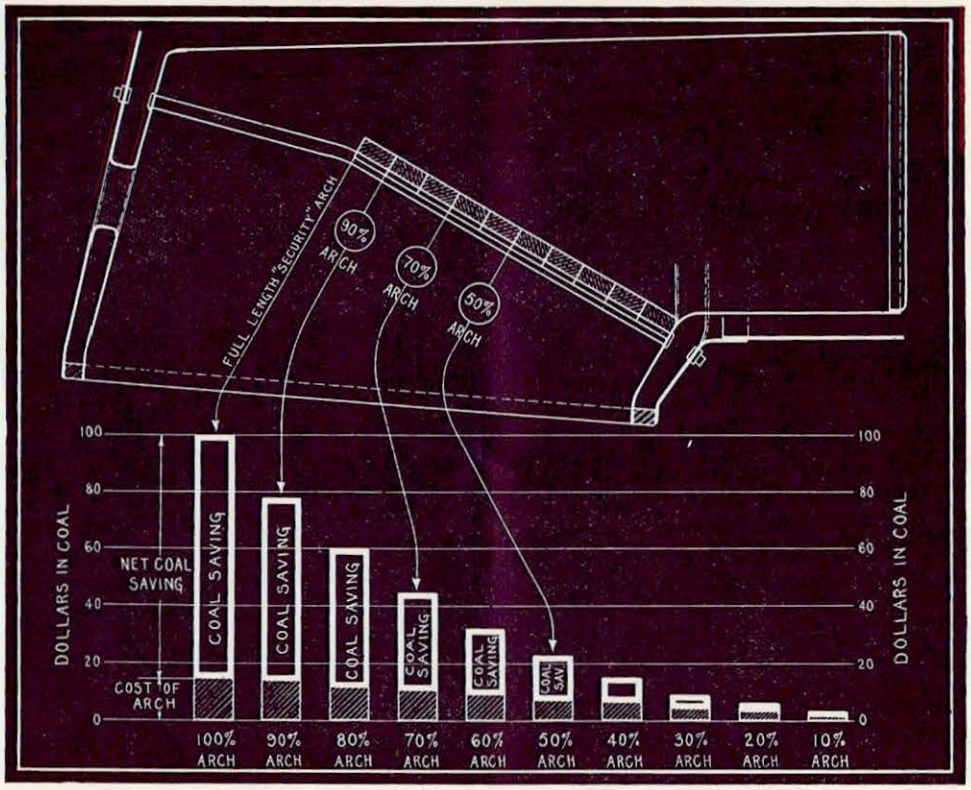
NEW YORK CHICAGO MONTREAL

Revenues and Expenses of Railways

MONTH OF APRIL AND FOUR MONTHS OF CALENDAR YEAR 1933—CONTINUED

Name of road		Av. mileage operated during period	Operating revenues: Freight	Passenger	Total (inc. misc.)	Operating expenses: Maintenance of—Way and structures	Maintenance of—Equipment	Traffic	Transportation	General	Total	Operating ratio	Net from railway operation	Operating income	Net railway operating income	Net ry. operating income, 1932
Chicago & Illinois Midland	April	131	$216,032	$887	$223,752	$15,863	$44,149	$14,281	$55,428	$16,904	$146,625	65.5	$77,127	$68,189	$73,838	—$68,583
	4 mos.	131	886,047	4,502	918,406	89,295	183,023	63,392	235,368	61,804	633,063	68.9	285,343	249,491	260,195	232,420
Chicago & North Western	April	8,442	3,929,895	546,285	5,098,578	751,475	1,223,904	147,870	2,149,744	268,840	4,565,716	89.5	532,862	—42,991	—239,698	—324,642
	4 mos.	8,442	14,804,654	2,322,129	19,449,089	2,163,136	5,039,134	572,395	8,904,267	1,066,273	17,851,612	91.8	1,597,477	—832,656	—1,702,943	—189,400
Chicago, Burlington & Quincy	April	9,248	4,428,234	370,792	5,465,204	527,363	958,135	204,935	2,096,113	278,635	4,099,824	75.0	1,365,380	695,018	348,914	689,833
	4 mos.	9,248	16,808,506	1,600,049	20,901,092	1,795,152	3,741,350	757,141	8,650,691	1,133,720	16,234,548	77.7	4,666,544	1,977,396	820,596	3,797,771
Chicago Great Western	April	1,499	945,011	28,856	1,049,815	142,416	158,980	49,470	429,256	45,333	824,843	78.6	224,972	163,796	—28,984	153,658
	4 mos.	1,499	3,529,442	129,325	3,942,831	603,858	656,688	200,238	1,748,803	188,305	3,392,550	86.0	550,281	306,378	—433,899	386,207
Chicago, Indianapolis & Louisville	April	647	448,630	41,720	556,100	44,000	125,000	19,000	240,000	18,000	450,000	80.9	106,100	66,345	—17,655	—61,549
	4 mos.	647	1,728,792	152,212	2,135,166	170,632	503,202	81,612	984,467	96,514	1,853,857	86.8	281,309	125,283	—207,112	—158,921
Chicago, Mil., St. Paul & Pacific	April	11,242	5,470,765	315,672	6,426,177	555,377	1,387,400	200,511	2,426,640	243,314	4,839,761	75.3	1,586,416	915,207	500,465	—217,374
	4 mos.	11,242	19,779,815	1,287,897	23,469,862	2,172,799	5,387,576	797,799	10,009,633	1,040,277	19,517,300	83.2	3,952,562	1,264,279	—368,327	—210,198
Chicago River & Indiana	April	20	.....	.....	342,437	10,000	23,000	1,360	105,078	8,979	148,417	43.3	194,020	170,137	222,567	196,110
	4 mos.	20	.....	.....	1,304,652	46,500	83,000	5,639	433,495	42,525	611,159	46.8	693,493	600,266	808,144	832,228
Chicago, Rock Island & Pacific	April	7,611	3,880,525	369,795	4,714,682	423,656	914,996	151,059	1,883,093	237,303	3,659,331	77.6	1,055,351	591,496	304,779	200,300
	4 mos.	7,611	14,641,720	1,535,297	17,987,220	1,680,344	3,896,853	680,508	7,991,262	1,031,664	15,493,447	86.1	2,493,773	630,363	—511,672	847,510
Chicago, Rock Island & Gulf	April	721	245,820	13,788	263,992	31,391	31,992	13,491	93,862	16,590	189,722	71.9	74,270	52,637	—31,214	21,867
	4 mos.	721	966,960	71,247	1,028,640	118,352	130,116	60,199	384,519	71,957	774,156	75.3	254,484	168,296	—124,730	230,780
Chic., St. Paul, Minn. & Omaha	April	1,736	823,162	85,637	995,239	136,000	167,006	29,308	484,704	64,097	888,145	89.2	107,094	32,839	—39,504	—131,133
	4 mos.	1,736	3,054,643	372,704	3,734,825	423,012	644,430	121,437	2,035,357	260,252	3,508,929	94.0	225,896	—87,474	—341,962	—314,287
Clinchfield R. R.	April	309	327,769	1,857	333,934	31,977	76,357	15,253	60,636	12,972	197,195	59.1	136,739	81,501	90,756	52,571
	4 mos.	309	1,441,871	7,514	1,467,638	131,774	317,602	60,812	258,650	52,975	821,813	56.0	645,825	425,587	467,491	291,873
Colorado & Southern	April	1,030	268,628	19,401	330,998	45,565	96,092	10,656	151,998	31,691	335,827	101.5	—4,829	—61,859	—74,347	—59,408
	4 mos.	1,030	1,208,854	77,205	1,451,846	150,245	363,872	46,563	648,360	125,699	1,332,267	91.8	119,579	—107,226	—166,992	—82,691
Ft. Worth & Denver City	April	804	265,766	20,226	343,216	13,155	66,039	15,498	132,355	33,327	261,418	76.2	81,798	54,781	30,480	17,346
	4 mos.	804	1,141,269	103,144	1,477,873	88,966	262,337	60,135	513,083	129,765	1,057,732	71.6	420,141	310,736	219,684	351,328
Columbus & Greenville	April	167	47,254	3,903	55,596	7,039	6,202	2,867	21,917	6,721	44,746	80.5	10,850	9,511	11,403	797
	4 mos.	167	168,652	12,144	198,680	45,798	35,333	10,789	92,620	31,626	216,166	108.8	—17,486	—22,931	—17,640	—10,339
Conemaugh & Black Lick	April	20	12,430	.....	23,704	4,576	7,005	289	12,096	3,359	27,325	115.3	—3,621	—3,921	—2,272	—6,316
	4 mos.	20	47,452	.....	99,069	15,732	25,934	1,122	52,692	9,950	105,430	106.4	—6,361	—7,561	—2,348	—21,121
Delaware & Hudson	April	854	1,265,832	69,326	1,436,013	255,894	470,948	48,677	692,899	136,513	1,606,727	111.9	—170,714	—251,590	—242,636	274,581
	4 mos.	854	5,571,975	318,537	6,286,475	1,066,735	1,977,436	191,338	2,972,355	542,946	6,749,707	107.4	—463,232	—795,388	—724,400	149,200
Delaware, Lackawanna & Western	April	998	2,188,724	498,833	3,169,660	284,500	694,531	105,754	1,465,969	147,532	2,723,239	85.9	446,421	45,764	1,665	614,976
	4 mos.	998	9,184,794	2,024,885	13,063,600	1,057,920	2,955,450	429,752	6,206,738	616,887	11,366,910	87.0	1,696,690	55,179	—59,682	1,998,160
Denver & Rio Grande Western	April	2,513	964,143	44,524	1,092,398	127,031	293,467	43,510	369,559	72,365	907,838	83.1	184,560	43,394	43,628	—29,275
	4 mos.	2,513	3,903,206	186,935	4,378,769	475,530	1,152,491	176,140	1,581,892	292,942	3,690,840	84.3	687,929	95,416	169,904	155,986
Denver & Salt Lake	April	232	52,640	5,200	68,573	14,989	19,767	1,514	19,386	11,450	65,621	95.7	2,952	—11,048	—2,822	—17,213
	4 mos.	232	349,015	19,263	409,013	60,797	87,691	6,121	88,972	44,911	287,007	70.2	122,006	65,738	88,713	231,891
Detroit & Mackinac	April	242	37,566	1,671	44,631	7,580	8,995	880	19,940	3,421	40,800	91.4	3,831	—2,044	—2,156	—10,109
	4 mos.	242	122,023	7,314	150,700	28,969	28,076	4,080	83,774	13,667	158,550	105.2	—7,850	—31,026	—32,207	—24,599
Detroit & Toledo Shore Line	April	50	163,625	.....	164,942	18,080	19,306	5,983	49,090	7,886	100,344	60.8	64,598	51,167	15,808	11,230
	4 mos.	50	847,378	.....	852,479	62,009	79,332	24,881	217,695	30,915	414,831	48.7	437,648	353,011	192,162	200,540
Detroit Terminal	April	19	.....	.....	47,484	4,678	7,479	.....	26,079	2,582	40,818	86.0	6,666	—2,838	—4,027	—14,251
	4 mos.	19	.....	.....	200,600	16,255	30,136	.....	113,011	10,553	169,955	84.7	30,645	—14,113	—25,884	—21,724
Detroit, Toledo & Ironton	April	472	260,959	205	270,683	30,750	55,614	9,205	81,453	16,383	191,670	70.8	79,013	46,251	38,757	42,645
	4 mos.	472	1,147,404	899	1,181,671	91,389	205,222	36,996	337,604	73,371	739,986	62.6	441,685	307,788	250,081	157,555
Duluth, Missabe & Northern	April	563	76,896	1,107	93,193	73,951	117,316	3,107	116,713	42,596	353,683	379.5	—260,490	—267,072	—264,146	—345,683
	4 mos.	563	200,258	4,144	257,118	288,159	519,914	11,859	449,108	161,958	1,430,998	556.6	—1,173,880	—1,196,360	—1,197,985	—1,483,803
Duluth, Winnipeg & Pacific	April	178	49,934	1,393	54,119	23,751	16,287	2,368	31,448	4,089	77,924	135.5	—23,805	—26,542	—9,123	—898
	4 mos.	178	198,786	5,555	215,193	70,245	85,833	9,233	132,112	16,638	314,007	145.9	—98,814	—109,740	—33,590	38,430
Elgin, Joliet & Eastern	April	446	588,129	.....	628,296	58,226	150,124	11,119	250,623	38,103	508,190	80.9	120,106	19,518	—18,236	—105,083
	4 mos.	446	2,198,852	.....	2,339,369	258,455	595,037	45,883	1,025,226	179,519	2,104,108	89.9	235,261	—167,403	—298,536	—217,939
Erie Railroad	April	2,046	3,644,492	400,223	4,444,793	447,377	1,056,547	126,028	1,772,437	228,645	3,639,408	81.9	805,385	464,577	353,575	696,363
	4 mos.	2,046	14,949,167	1,627,037	18,147,599	1,649,414	4,227,034	513,211	7,229,215	937,966	14,596,210	80.4	3,551,389	2,177,118	1,778,618	2,715,040
Chicago & Erie	April	269	646,992	11,672	702,406	77,958	81,987	21,704	180,558	32,332	392,607	55.9	309,799	273,888	92,181	—28,936
	4 mos.	269	2,376,220	50,140	2,582,028	255,176	349,263	88,713	753,002	131,550	1,575,494	61.0	1,006,534	863,013	108,089	18,180

Continued on next left-hand page



THE EFFECT OF ABBREVIATED ARCHES ON FUEL SAVING

LET THE ARCH HELP YOU SAVE

With the emphasis being placed on saving every railroad dollar, the locomotive Arch becomes increasingly important.

Regardless of the amount of traffic handled, the locomotive Arch saves enough fuel to pay for itself ten times over.

Be sure that every locomotive leaving the roundhouse has its Arch complete with not a single brick nor a single course missing.

In this way, you will get more work for each dollar of fuel expense. Skimping on Arch Brick results in a net loss to the railroad.

THERE'S MORE TO SECURITY ARCHES THAN JUST BRICK

HARBISON-WALKER REFRACTORIES CO.
Refractory Specialists

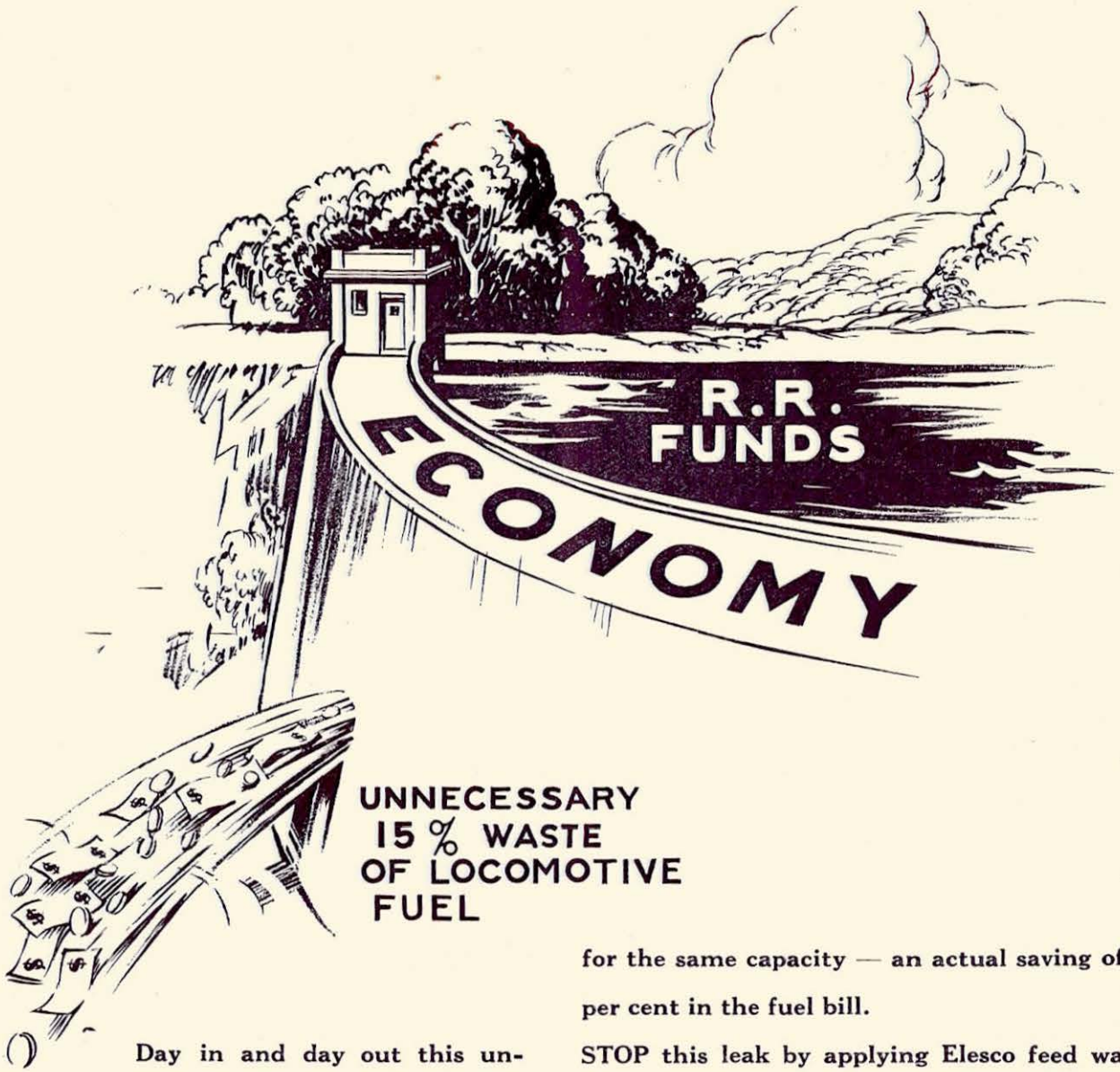
AMERICAN ARCH CO.
INCORPORATED
Locomotive Combustion Specialists

Revenues and Expenses of Railways

MONTH OF APRIL AND FOUR MONTHS OF CALENDAR YEAR 1933—CONTINUED

Name of road		Av. mileage operated during period	Operating revenues: Freight	Passenger	Total (inc. misc.)	Operating expenses: Maintenance of—Way and structures	Maintenance of—Equipment	Traffic	Transportation	General	Total	Operating ratio	Net from railway operation	Operating income	Net railway operating income	Net ry. operating income 1932
New Jersey & New York	April	45	$14,096	$62,070	$78,143	$7,405	$24,475	$1,259	$47,786	$3,286	$84,211	107.8	—$6,068	—$11,068	—$29,039	—$17,149
	4 mos.	45	60,118	262,167	329,105	30,696	93,630	5,525	195,808	13,636	339,295	103.1	—10,190	—30,209	—105,520	—82,843
N. Y., Susquehanna & Western	April	131	194,198	26,438	232,093	25,096	46,299	4,189	97,295	10,318	183,197	78.9	48,896	18,924	5,566	71,507
	4 mos.	131	861,580	108,225	1,024,639	92,208	190,876	17,271	424,645	41,925	766,925	74.8	257,714	136,524	78,109	108,382
Florida East Coast	April	839	580,139	150,757	815,283	105,308	127,149	20,012	195,978	41,117	494,683	60.7	320,600	245,425	177,657	43,996
	4 mos.	839	2,280,653	876,959	3,503,643	405,170	536,486	84,223	792,613	159,145	2,003,258	57.2	1,500,385	1,199,470	996,453	815,084
Fort Smith & Western	April	249	39,378	904	43,911	12,333	8,741	4,356	17,188	4,040	46,804	106.6	—2,893	—4,993	—9,884	—16,534
	4 mos.	249	184,321	3,374	203,346	50,255	40,161	17,412	73,743	16,648	198,814	97.8	4,532	—5,371	—17,176	—35,404
Galveston Wharf	April	11	.....	.....	79,484	26,185	2,878	2,850	19,651	5,174	60,268	75.8	19,216	—791	—816	45,698
	4 mos.	11	.....	.....	347,653	122,048	13,051	11,549	74,254	24,205	260,670	75.0	86,983	6,910	6,974	175,778
Georgia R. R.	April	329	242,504	10,553	271,511	26,459	51,123	15,902	107,515	12,882	214,219	78.9	57,292	52,106	59,406	46,778
	4 mos.	329	848,875	44,272	964,966	109,064	184,155	63,892	432,417	50,335	840,560	87.1	124,406	100,818	127,422	38,058
Georgia & Florida	April	463	69,105	1,513	75,090	15,968	14,435	7,844	31,362	6,422	76,210	101.5	—1,120	—6,120	—6,436	—16,256
	4 mos.	463	242,438	3,900	263,889	64,203	54,075	32,598	122,607	26,048	300,255	113.8	—36,366	—56,366	—67,725	—84,307
Grand Trunk Western	April	1,002	1,019,584	37,451	1,132,860	201,890	286,672	36,533	518,243	73,612	1,118,825	98.8	14,035	—57,299	—151,639	—157,358
	4 mos.	1,002	4,067,966	175,136	4,577,089	632,017	1,079,683	142,419	2,144,435	299,429	4,307,061	94.1	270,028	—103,525	—521,569	—571,281
Canadian Nat'l Lines in New Eng.	April	172	50,223	3,539	62,658	13,079	15,965	3,093	51,476	8,677	92,970	148.4	—30,312	—44,450	—82,711	—54,436
	4 mos.	172	252,531	25,941	318,087	61,170	69,494	12,086	206,190	34,146	390,465	122.7	—72,378	—128,910	—272,902	—324,720
Great Northern	April	8,452	3,407,328	195,948	3,961,764	313,615	881,033	155,192	1,470,301	183,358	3,040,277	76.7	921,487	345,523	178,497	—287,046
	4 mos.	8,454	12,066,479	868,427	14,450,859	1,342,645	3,525,601	607,161	6,355,387	749,022	12,697,825	87.9	1,753,034	—416,187	—1,146,869	—1,611,979
Green Bay & Western	April	234	76,991	949	80,305	16,185	12,168	4,802	36,561	2,659	72,356	90.1	7,949	1,949	1,364	7,999
	4 mos.	234	312,200	3,637	326,072	64,848	45,985	17,415	152,876	10,259	291,140	89.3	34,932	10,932	6,544	12,609
Gulf & Ship Island	April	307	68,036	6,809	85,089	11,202	10,542	1,916	45,419	2,891	71,973	84.6	13,116	—4,648	—16,324	—13,366
	4 mos.	307	294,529	26,602	361,451	40,117	65,767	8,392	174,395	14,979	304,949	84.4	56,502	—17,549	—66,435	—77,632
Gulf, Mobile & Northern	April	733	265,927	5,746	283,482	36,326	34,065	19,724	84,555	17,555	192,225	67.81	91,257	70,088	49,996	40,057
	4 mos.	733	883,677	29,058	967,428	129,550	151,937	76,877	336,357	62,396	757,117	78.26	210,311	126,108	44,630	—52,312
Illinois Central	April	5,014	4,421,655	498,084	5,614,927	325,043	1,048,538	132,541	2,108,937	200,239	3,840,967	68.4	1,773,960	1,289,577	1,146,610	772,709
	4 mos.	5,014	18,051,671	2,126,465	22,138,014	1,395,110	4,781,570	624,061	8,736,487	1,043,634	16,691,159	75.4	5,446,855	3,508,772	3,028,102	4,075,754
Yazoo & Mississippi Valley	April	1,673	677,381	49,057	804,811	42,756	118,200	18,724	356,770	27,818	563,958	70.1	240,853	111,443	2,391	—50,863
	4 mos.	1,673	2,847,645	192,721	3,308,379	208,336	530,020	84,114	1,491,130	147,156	2,462,125	74.4	846,254	327,212	—73,059	—44,338
Illinois Central System	April	6,687	5,099,036	547,141	6,419,738	367,799	1,166,738	151,265	2,465,707	228,057	4,404,925	68.6	2,014,813	1,401,020	1,149,001	721,846
	4 mos.	6,687	20,899,316	2,319,186	25,446,393	1,603,446	5,311,590	708,175	10,227,617	1,190,790	19,153,284	75.3	6,293,109	3,835,984	2,955,043	4,031,416
Illinois Terminal	April	540	322,029	47,894	382,256	41,803	46,126	13,248	133,757	19,140	254,056	66.46	128,200	104,523	75,325	46,604
	4 mos.	542	1,145,959	187,069	1,381,519	140,660	193,040	57,020	553,448	69,071	1,013,048	73.33	368,471	273,962	164,304	212,112
Kansas City Southern	April	783	578,486	12,054	684,991	66,463	116,925	40,312	208,378	63,014	494,348	72.2	190,643	114,534	86,449	75,090
	4 mos.	783	2,229,674	47,914	2,591,871	259,288	459,526	154,400	850,357	233,366	1,961,372	75.7	630,499	325,124	250,538	354,107
Texarkana & Ft. Smith	April	98	62,758	1,014	77,495	8,176	7,599	6,092	21,976	8,972	53,727	69.3	23,768	16,149	—3,771	—6,192
	4 mos.	98	228,787	3,592	276,629	32,715	24,189	21,361	98,925	32,331	213,391	77.1	63,238	32,779	—39,194	—20,182
Kansas, Oklahoma & Gulf	April	326	133,082	285	135,607	18,656	10,148	6,367	38,140	7,514	80,825	59.6	54,782	38,088	23,945	32,776
	4 mos.	326	507,356	1,107	518,593	48,935	45,455	26,380	138,380	30,433	289,325	55.8	229,268	167,694	116,870	140,465
Lake Superior & Ishpeming	April	160	18,805	91	20,465	14,707	12,399	475	13,976	5,118	46,675	228.1	—26,210	—38,726	—39,536	—42,981
	4 mos.	160	81,550	339	87,842	58,657	49,935	1,920	59,560	21,804	191,876	218.4	—104,034	—154,099	—157,474	—173,683
Lake Terminal	April	12	.....	.....	22,045	3,589	4,021	.....	12,268	2,470	22,348	101.4	—303	—3,136	—3,739	—4,585
	4 mos.	12	.....	.....	91,840	10,970	15,597	.....	52,127	10,042	88,736	96.6	3,104	—8,228	—10,936	—23,481
Lehigh & Hudson River	April	96	99,530	205	107,104	8,374	22,109	3,464	38,554	6,027	78,528	73.3	28,576	17,193	7,900	24,001
	4 mos.	96	409,510	1,067	440,772	37,210	80,048	12,834	159,624	25,504	315,220	71.5	125,552	78,846	35,451	33,861
Lehigh & New England	April	228	222,961	392	224,713	30,800	45,909	5,298	82,214	16,189	180,410	80.3	44,303	36,084	46,415	96,153
	4 mos.	228	892,073	1,679	901,543	106,117	198,214	20,726	357,673	66,746	749,467	83.1	152,076	122,968	162,690	300,430
Lehigh Valley	April	1,359	2,252,099	186,745	2,680,243	273,299	656,103	107,433	1,273,411	125,993	2,449,072	91.4	231,171	—28,105	—143,308	719,604
	4 mos.	1,360	9,681,428	694,362	11,328,821	789,781	2,593,527	427,726	5,217,734	499,875	9,581,231	84.6	1,747,590	706,618	257,643	1,362,160
Louisiana & Arkansas	April	608	284,592	5,968	317,107	35,376	57,209	21,819	72,447	16,969	203,622	64.2	113,485	82,977	71,207	52,661
	4 mos.	608	1,135,328	28,828	1,255,804	126,276	217,368	78,374	309,084	65,624	794,279	63.2	461,525	339,352	285,696	217,778
Louisiana, Arkansas & Texas	April	255	55,275	183	61,250	15,799	7,174	3,125	23,091	4,140	53,329	87.1	7,921	5,421	—4,323	—7,785
	4 mos.	255	203,388	900	226,372	64,479	30,315	12,887	95,704	17,041	220,426	102.7	5,946	—2,911	—44,338	—24,791
Louisville & Nashville	April	5,170	3,824,189	300,536	4,551,561	598,682	1,088,445	178,621	1,815,375	266,915	3,974,713	87.3	576,848	201,538	105,823	—121,500
	4 mos.	5,167	16,400,347	1,313,975	19,258,327	2,251,936	4,262,374	672,826	7,292,482	1,031,786	15,617,061	81.1	3,641,266	2,134,384	2,189,525	1,025,742

Continued on next left-hand page



UNNECESSARY 15% WASTE OF LOCOMOTIVE FUEL

Day in and day out this unnecessary leak is going on — *unless* your locomotives are equipped for exhaust-steam feed water heating. By simply passing a portion of the exhaust steam [represented by the leak through an Elesco feed water heater, the heat is reclaimed and returned to the boiler in the feed water. This represents a 15 per cent reduction in the fuel consumption for the same capacity — an actual saving of 15 per cent in the fuel bill.

STOP this leak by applying Elesco feed water heaters to all your locomotives. The principle is sound — the savings positive. The equipment is readily applied to existing power. It is highly efficient, rugged and dependable. Write *today* for details.

The Elesco
FEED WATER HEATER

THE SUPERHEATER COMPANY

Representative of AMERICAN THROTTLE COMPANY, Inc.

60 East 42nd Street
NEW YORK

ELESCO

Peoples Gas Building
CHICAGO

Canada: The Superheater Company, Limited, Montreal

A-787

Superheaters . Feed Water Heaters . Exhaust Steam Injectors . Superheated Steam Pyrometers . American Throttles

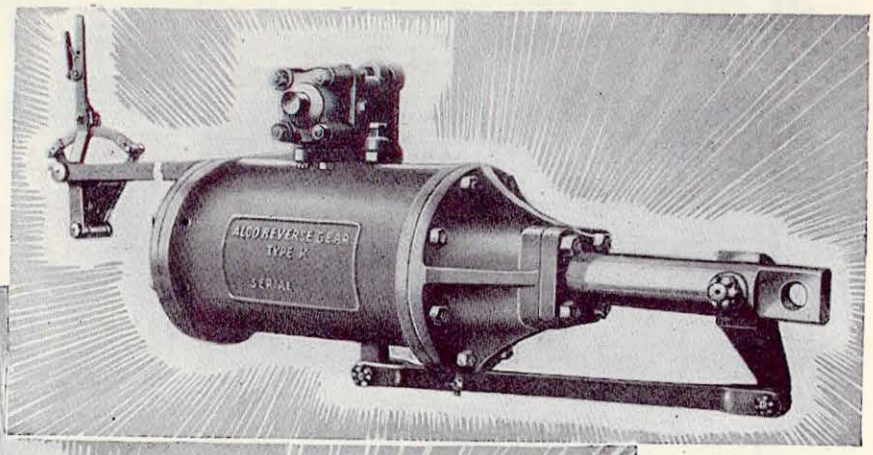
Revenues and Expenses of Railways

MONTH OF APRIL AND FOUR MONTHS OF CALENDAR YEAR 1933—CONTINUED

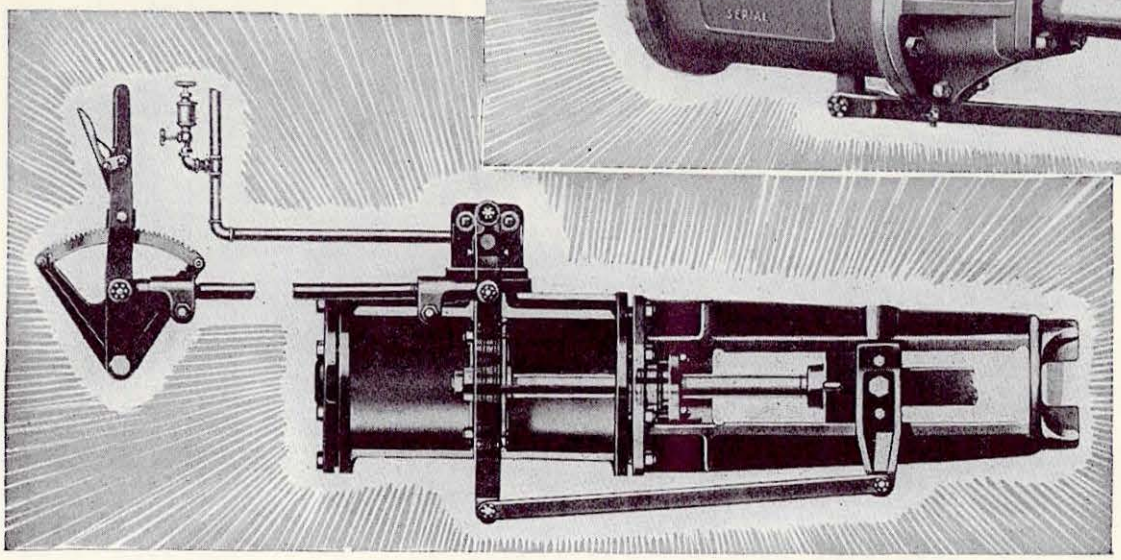
Name of road		Av. mileage operated during period	Operating revenues: Freight	Passenger	Total (inc. misc.)	Operating expenses: Maintenance of—Way and structures	Maintenance of—Equipment	Traffic	Transportation	General	Total	Operating ratio	Net from railway operation	Operating income	Net railway operating income	Net ry. operating income, 1932
Maine Central	April	1,117	$620,931	$61,616	$771,849	$80,656	$119,154	$11,206	$305,601	$36,783	$553,400	71.7	$218,449	$171,618	$132,860	$120,120
	4 mos.	1,117	2,536,396	260,400	3,128,578	357,616	502,377	42,588	1,309,950	150,184	2,362,128	75.5	766,449	579,204	423,564	380,695
Midland Valley	April	363	111,279	289	115,053	15,925	13,818	2,264	29,009	6,472	67,488	58.7	47,565	37,628	30,971	40,042
	4 mos.	363	400,315	1,709	417,152	54,200	39,958	9,651	113,967	27,363	245,112	58.8	172,040	133,741	104,537	134,568
Minneapolis & St. Louis	April	1,627	526,196	11,238	577,749	67,881	125,886	29,268	282,681	36,771	542,363	93.9	35,386	—3,832	—31,322	—61,163
	4 mos.	1,627	1,906,518	50,323	2,106,781	207,338	541,081	114,795	1,145,609	148,168	2,153,004	102.2	—46,223	—199,066	—291,465	—186,805
Minn., St. Paul & S. S. Marie	April	4,337	1,522,439	62,561	1,730,957	227,206	339,550	58,471	687,640	109,110	1,425,147	82.3	305,810	179,757	125,734	—88,534
	4 mos.	4,337	4,991,426	260,814	5,769,128	879,935	1,405,652	237,201	2,867,768	430,015	5,827,891	101.0	—58,763	—635,958	—1,072,858	—1,307,859
Duluth, South Shore & Atlantic	April	563	118,736	8,247	138,429	25,021	29,972	5,217	64,532	6,099	130,841	94.5	7,588	—9,839	—18,035	—37,133
	4 mos.	561	421,154	35,718	501,291	99,430	126,354	22,835	265,910	24,924	541,509	108.0	—40,218	—129,849	—147,102	—183,857
Spokane International	April	163	24,936	1,452	30,051	11,202	5,442	1,789	18,030	4,057	40,520	134.8	—10,469	—15,326	—17,462	—12,290
	4 mos.	163	94,193	6,440	114,315	43,937	17,500	7,940	75,527	16,557	161,461	141.2	—47,146	—66,542	—73,802	—66,566
Mississippi Central	April	150	47,560	797	49,940	10,298	10,093	6,042	13,924	4,991	45,348	90.8	4,592	1,902	—2,385	—7,763
	4 mos.	150	157,897	3,439	168,157	25,906	37,210	23,866	60,265	20,491	167,738	99.8	419	—9,434	—23,401	—51,774
Missouri & North Arkansas	April	364	64,951	791	72,596	13,774	9,424	4,790	25,897	5,102	58,972	81.2	13,624	11,140	3,155	—21,529
	4 mos.	364	211,651	3,453	237,006	57,740	35,815	22,221	100,555	21,886	238,202	100.5	—1,196	—11,157	—40,508	—51,227
Missouri-Illinois	April	202	56,710	282	58,672	9,939	8,308	2,456	21,212	5,587	47,493	80.9	11,179	4,339	—4,475	285
	4 mos.	202	233,589	1,335	241,187	46,176	52,965	9,923	87,613	22,037	218,644	90.7	22,543	—1,780	—32,853	6,452
Missouri-Kansas-Texas Lines	April	3,293	1,483,637	129,138	1,819,962	242,188	331,661	94,287	683,359	135,861	1,498,312	82.3	321,650	140,096	—31,288	190,492
	4 mos.	3,293	5,627,249	539,769	6,939,182	1,025,165	1,188,469	412,649	2,840,410	549,421	6,062,502	87.4	876,680	109,919	—545,179	616,231
Missouri Pacific	April	7,412	4,049,173	241,557	4,780,719	633,480	1,119,948	202,763	1,871,857	243,015	4,088,675	85.5	692,044	373,572	55,633	527,618
	4 mos.	7,412	16,221,584	1,091,481	19,130,245	2,099,270	4,017,423	827,646	7,779,276	1,035,404	15,807,873	82.6	3,322,372	1,875,015	638,974	2,305,628
Gulf Coast Lines	April															
	4 mos.															
International-Great Northern	April	1,159	956,829	38,843	1,075,992	116,142	179,604	25,766	372,653	43,228	743,696	69.12	332,296	295,613	153,313	6,075
	4 mos.	1,159	3,274,792	176,814	3,771,751	407,772	595,451	105,723	1,426,535	182,395	2,748,320	72.87	1,023,431	874,659	417,610	—132,686
San Antonio, Uvalde & Gulf	April	316	52,242	2,124	58,380	16,290	10,914	3,985	18,689	4,204	53,585	91.8	4,795	1,087	—20,582	—2,870
	4 mos.	316	220,788	12,054	250,714	60,593	44,357	16,057	71,332	17,753	209,310	83.5	41,404	25,918	—64,344	14,553
Mobile & Ohio	April	1,239	614,685	14,805	668,155	73,756	119,862	36,528	243,763	35,377	509,703	76.3	158,452	117,370	44,920	8,633
	4 mos.	1,239	2,099,418	62,744	2,297,515	294,433	462,383	151,022	962,914	145,253	2,016,810	87.8	280,705	118,071	—115,417	—198,974
Monongahela	April	177	229,773	601	231,830	17,405	20,672	539	47,614	11,703	97,933	42.2	133,897	120,822	57,630	124,764
	4 mos.	177	957,343	2,573	966,169	67,484	87,285	3,439	217,685	35,022	410,933	42.5	555,236	509,234	247,112	344,865
Monongahela Connecting	April	6	.....	.....	36,056	7,906	14,558	45	22,446	2,655	47,610	132.0	—11,554	—16,625	—15,528	—16,635
	4 mos.	6	.....	.....	138,639	33,128	55,310	180	95,845	10,515	194,978	140.6	—56,339	—75,838	—72,557	—87,727
Montour	April	57	103,839	.....	104,388	9,563	29,419	1,215	22,814	6,785	69,796	66.9	34,592	31,893	50,175	58,422
	4 mos.	57	417,042	.....	421,328	34,631	111,673	4,845	102,870	28,362	282,381	67.0	138,947	128,050	200,657	225,763
Nashville, Chatt. & St. Louis	April	1,203	931,126	53,667	1,078,423	134,298	231,946	52,955	390,933	50,083	863,226	80.0	215,197	180,567	160,803	—3,517
	4 mos.	1,203	3,226,599	240,356	3,866,905	527,085	867,963	220,259	1,520,223	214,684	3,366,307	87.1	500,598	366,819	303,848	86,706
Nevada Northern	April	165	14,400	974	19,492	8,307	3,756	746	6,401	3,192	22,402	114.9	—2,910	—10,182	—5,885	—4,777
	4 mos.	165	57,370	5,544	78,258	34,221	16,316	2,990	30,254	13,279	97,060	124.0	—18,802	—48,472	—31,158	—20,653
Newburgh & South Shore	April	6	.....	.....	43,404	4,004	18,136	.....	24,270	4,563	50,973	117.4	—7,569	—16,334	—11,256	—12,463
	4 mos.	6	.....	.....	175,340	16,679	75,683	.....	97,899	19,487	209,748	119.6	—34,408	—69,504	—57,680	—48,344
New Orleans Great Northern	April	262	123,166	5,451	132,299	7,958	15,825	12,123	36,966	7,139	80,011	60.5	52,288	42,300	24,581	13,915
	4 mos.	262	479,756	22,635	517,497	38,042	61,183	46,244	150,013	27,275	322,757	62.4	194,740	155,037	68,283	41,694
New Orleans Terminal	April	20	495	.....	107,161	7,566	5,262	.....	26,144	927	39,899	37.2	67,262	57,935	46,487	15,485
	4 mos.	20	3,492	.....	442,799	29,995	21,260	.....	102,118	4,194	157,567	35.6	285,232	240,242	183,223	110,091
New York Central	April	11,440	13,968,952	3,550,829	20,403,720	1,619,859	4,272,263	464,456	7,825,082	943,721	15,380,029	75.4	5,023,691	2,592,599	1,420,162	363,974
	4 mos.	11,440	56,783,749	14,873,971	82,593,236	6,833,456	17,152,314	1,835,381	32,465,662	3,971,144	63,367,287	76.7	19,225,949	9,488,004	4,815,423	7,520,136
Indiana Harbor Belt	April	120	.....	.....	603,311	30,000	70,000	3,063	227,062	15,229	352,177	58.4	251,134	201,109	161,767	99,370
	4 mos.	120	.....	.....	2,239,339	160,500	205,000	12,175	930,652	71,995	1,413,600	63.1	825,739	655,061	464,306	439,826
Pittsburgh & Lake Erie	April	231	824,540	39,603	895,242	64,804	321,963	23,179	348,308	61,345	820,643	91.7	74,599	—4,208	104,904	163,060
	4 mos.	234	3,207,721	165,376	3,492,148	266,073	1,310,309	94,207	1,371,508	226,792	3,274,598	93.8	217,550	—95,150	349,306	584,197
New York, Chicago & St. Louis	April	1,691	2,075,638	47,985	2,202,432	205,209	347,681	92,866	794,034	111,781	1,548,535	70.3	653,897	500,104	275,699	94,394
	4 mos.	1,691	8,233,055	195,590	8,747,729	766,622	1,499,728	387,931	3,282,063	451,538	6,389,745	73.0	2,357,984	1,674,657	767,276	585,509
N. Y., New Haven & Hartford	April	2,071	2,767,693	1,598,781	5,028,788	598,057	870,342	76,123	1,913,024	223,695	3,795,688	75.5	1,233,100	833,046	341,903	1,157,440
	4 mos.	2,071	11,059,333	6,575,837	20,225,711	2,422,963	3,393,105	303,640	8,151,327	935,099	15,679,931	77.5	4,545,780	3,015,847	1,097,074	4,594,813

Continued on next left-hand page

Alco



Type "K" Gear with trunk-piston rod.



Type "G" Gear with crosshead and guides.

REVERSE GEAR FACTS

CYLINDERS are accurately bored, reamed, and honed to a glass finish. They are truly round, not tapered.

Joints between cylinder and cylinder heads are ground — no gaskets used.

Piston rods are ground to size and polished. They are not combined with any part of the piston, but are held in piston by a tapered fit and large nut — same construction as the piston and piston rod on large steam locomotives.

All pins and bushings are hardened and ground to size.

And a hardened steel quadrant, with its 82 notches, permits very small changes in cut-off.

American Locomotive Company
30 Church Street New York N.Y.

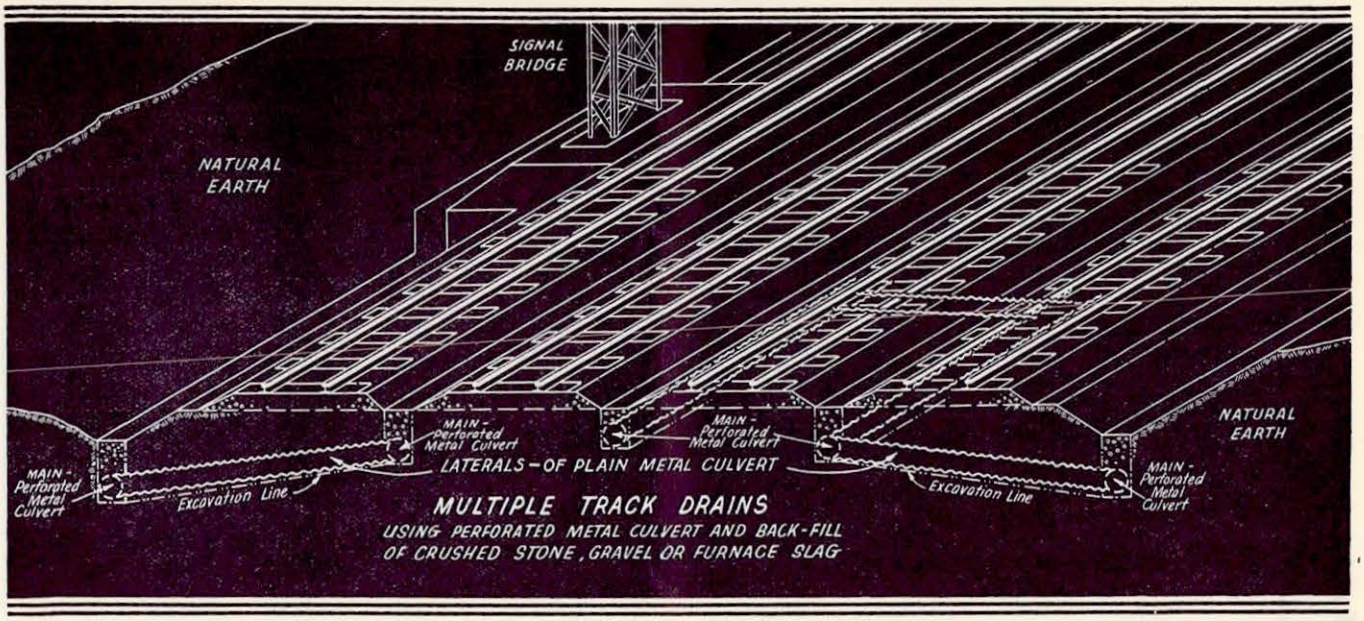
Revenues and Expenses of Railways

MONTH OF APRIL AND FOUR MONTHS OF CALENDAR YEAR 1933—CONTINUED

Name of road		Av. mileage operated during period	Operating revenues: Freight	Passenger	Total (inc. misc.)	Operating expenses: Maintenance of—Way and structures	Maintenance of—Equipment	Traffic	Transportation	General	Total	Operating ratio	Net from railway operation	Operating income	Net railway operating income	Net ry. operating income, 1932
New York Connecting	April	20	$211,263	.....	$221,745	$10,720	$6,150	.....	$22,785	$1,008	$40,663	18.3	$181,082	$150,222	$113,598	$62,680
	4 mos.	20	902,355	.....	938,838	34,425	27,978	.....	104,193	3,626	170,222	18.1	768,616	638,336	466,909	311,964
New York, Ontario & Western	April	568	607,514	$15,384	699,706	79,080	141,689	$12,204	279,311	24,889	538,418	76.9	161,288	123,294	93,772	226,489
	4 mos.	568	2,750,222	51,847	3,153,172	289,350	582,769	49,086	1,242,953	96,592	2,274,335	72.1	878,837	705,633	570,844	675,044
Norfolk & Western	April	2,219	3,979,480	101,171	4,251,698	505,811	975,928	113,838	1,142,818	210,335	2,959,494	69.6	1,292,204	741,515	782,266	1,174,677
	4 mos.	2,230	17,851,503	400,704	18,926,116	2,000,223	3,901,552	434,391	4,852,784	858,052	12,097,869	63.9	6,828,247	4,326,434	4,710,073	4,266,245
Norfolk Southern	April	932	334,813	7,630	358,643	71,656	41,997	17,099	138,304	22,389	291,445	81.3	67,198	28,612	13,541	—9,519
	4 mos.	932	1,115,573	24,950	1,204,355	280,528	236,583	77,103	554,183	89,921	1,238,318	102.8	—33,963	—187,102	—233,586	—202,146
Northern Pacific	April	6,735	2,886,851	168,436	3,371,667	659,132	963,813	153,742	1,381,201	246,229	3,448,363	102.3	—76,696	—604,561	—348,158	—106,383
	4 mos.	6,735	9,824,026	720,245	11,739,969	1,635,940	3,779,065	577,529	5,545,952	1,017,157	12,728,148	108.4	—988,179	—3,075,376	—2,047,417	—1,480,625
Northwestern Pacific	April	407	95,523	75,777	201,041	37,552	36,568	5,521	115,077	14,499	207,758	103.3	—6,717	—29,416	—40,986	—60,113
	4 mos.	420	324,684	271,862	697,925	146,201	167,712	18,573	473,938	58,317	861,809	123.5	—163,884	—254,225	—297,064	—313,455
Oklahoma City-Ada Atoka	April	132	28,595	305	30,409	4,441	1,051	650	9,675	1,383	17,200	56.6	13,209	9,062	2,496	—1,479
	4 mos.	132	105,227	1,126	112,541	15,292	5,981	2,577	39,586	5,860	69,296	61.6	43,245	28,178	2,425	—11,076
Pennsylvania R. R.	April	10,892	16,673,720	4,183,859	23,476,055	1,792,160	4,629,572	471,024	8,457,961	1,231,432	16,830,598	71.7	6,645,457	4,250,172	3,333,259	4,581,414
	4 mos.	10,892	66,506,212	16,167,961	92,814,574	7,547,658	18,566,667	2,035,980	35,703,552	5,018,840	69,703,539	75.1	23,111,035	15,021,401	11,529,319	16,284,390
Long Island	April	399	433,930	1,269,798	1,796,130	135,563	278,862	13,485	819,409	52,284	1,299,606	72.4	496,524	330,662	153,976	412,681
	4 mos.	399	1,854,181	5,038,022	7,304,648	573,688	1,085,780	43,912	3,368,467	214,350	5,286,216	72.4	2,018,432	1,524,219	846,258	1,160,226
Peoria & Pekin Union	April	18	8,521	.....	68,181	6,264	6,164	1,708	29,000	7,330	50,466	74.0	17,715	2,179	21,912	15,478
	4 mos.	18	36,172	.....	265,558	31,566	27,041	7,221	124,227	27,862	217,917	82.1	47,641	—10,008	67,784	71,253
Pere Marquette	April	2,320	1,443,708	34,389	1,574,396	209,758	427,545	53,960	651,404	88,724	1,435,102	91.2	139,294	46,951	—51,003	—71,340
	4 mos.	2,320	6,017,550	157,889	6,515,202	872,973	1,634,630	224,554	2,720,705	357,306	5,825,185	89.4	690,017	237,812	—99,434	183,274
Pittsburg & Shawmut	April	102	41,495	478	42,675	8,152	16,032	1,292	13,964	3,551	42,991	100.7	—316	—1,020	—1,139	8,544
	4 mos.	102	179,756	2,443	184,880	33,407	67,129	5,453	60,695	17,283	183,967	99.5	913	—1,231	836	23,069
Pittsburgh & West Virginia	April	138	185,145	.....	195,210	22,206	41,346	10,451	36,935	11,828	129,531	66.4	65,679	41,607	62,210	38,540
	4 mos.	138	622,440	43	670,043	73,735	181,438	44,955	141,990	49,677	519,517	77.5	150,526	55,434	125,796	128,165
Pittsburg, Shawmut & Northern	April	195	65,234	180	69,620	11,199	17,209	1,314	24,204	7,008	60,934	87.5	8,686	6,286	2,564	—900
	4 mos.	197	263,718	684	276,679	41,462	628,130	65,243	1,396,657	176,316	2,495,856	88.9	30,612	21,660	3,738	7,127
Reading	April	1,461	2,976,742	226,963	3,453,045	215,474	69,739	5,078	102,504	27,284	246,067	72.3	957,189	740,858	687,956	922,609
	4 mos.	1,461	12,982,713	939,074	14,909,961	860,965	3,119,934	273,839	5,954,862	732,808	11,003,175	73.8	3,906,786	3,061,188	2,823,656	2,843,400
Atlantic City	April	168	55,327	40,001	103,333	19,170	12,745	1,840	97,823	4,308	135,971	131.6	—32,638	—70,571	—81,757	—78,369
	4 mos.	168	262,936	130,250	424,025	82,543	55,361	7,424	406,705	17,392	569,969	134.4	—145,944	—297,668	—336,788	—356,578
Richmond, Fredericksburg & Potomac	April	117	334,947	130,220	574,727	59,585	89,213	8,476	203,523	29,456	400,394	69.7	174,333	140,097	85,646	68,156
	4 mos.	117	1,202,313	573,380	2,223,259	194,742	383,704	32,137	861,021	120,449	1,631,852	73.4	591,407	468,814	248,772	287,497
Rutland	April	413	176,509	26,793	261,593	37,895	54,110	9,835	122,739	14,078	238,657	91.2	22,936	3,468	14,737	46,301
	4 mos.	413	611,788	129,828	999,470	151,713	225,643	39,517	489,716	54,234	959,965	96.0	39,505	—40,037	3,867	93,578
St. Louis-San Francisco	April	5,266	2,589,615	152,893	2,995,529	502,183	718,214	87,419	1,044,287	139,895	2,480,956	82.8	514,573	190,843	143,649	441,734
	4 mos.	5,266	9,871,385	675,408	11,517,496	1,901,572	2,906,709	355,315	4,251,323	556,952	9,963,632	86.5	1,553,864	240,152	27,702	920,994
Ft. Worth & Rio Grande	April	233	27,091	1,061	33,017	15,630	11,857	2,551	21,915	3,874	55,637	168.5	—22,620	—26,637	—33,891	—34,358
	4 mos.	233	102,920	4,168	126,216	68,303	45,570	9,417	84,988	14,418	222,506	176.3	—96,290	—112,406	—139,811	—153,261
St. Louis, San Francisco & Texas	April	262	81,884	216	85,980	19,662	16,233	4,560	32,724	7,114	80,289	93.4	5,691	1,711	—22,473	—45,118
	4 mos.	262	280,278	2,037	294,852	95,416	67,870	19,123	132,611	29,042	343,173	116.4	—48,321	—64,315	—167,673	—214,826
St. Louis Southwestern Lines	April	1,914	919,105	10,240	975,657	113,360	129,101	66,162	323,355	62,147	697,604	71.5	278,053	210,785	99,413	64,104
	4 mos.	1,914	3,492,638	49,761	3,721,681	445,751	577,527	277,412	1,339,971	269,842	2,927,843	78.7	793,838	503,853	100,668	23,266
San Diego & Arizona Eastern	April	155	21,054	3,954	27,912	7,525	8,715	1,681	16,992	4,508	40,062	143.5	—12,150	—15,503	—14,240	—32,613
	4 mos.	155	137,044	23,581	166,347	36,955	36,006	7,472	71,317	18,485	172,468	103.7	—6,121	—19,253	—16,655	—47,073
Seaboard Air Line	April	4,385	2,586,775	167,324	3,051,213	410,978	501,454	132,965	996,153	129,229	2,194,092	71.9	857,121	616,147	500,530	381,356
	4 mos.	4,385	9,631,099	923,680	11,662,742	1,695,909	2,182,247	535,645	4,033,887	516,632	9,079,251	77.8	2,583,491	1,660,480	1,099,640	852,296
Southern Ry.	April	6,653	5,169,305	516,270	6,206,344	741,205	1,083,223	152,153	2,191,679	245,958	4,444,863	71.6	1,761,481	1,270,995	1,102,096	325,345
	4 mos.	6,653	19,390,262	2,041,817	23,418,836	2,590,145	4,676,000	611,064	8,713,651	981,568	17,630,813	75.3	5,788,023	3,811,440	3,227,330	1,191,278
Alabama Great Southern	April	315	300,332	27,406	357,681	49,067	75,505	8,893	115,065	14,538	264,812	74.0	92,869	58,312	43,625	—47,309
	4 mos.	315	1,007,373	108,417	1,224,201	206,966	320,715	38,102	464,344	56,831	1,094,332	89.4	129,869	—8,874	—49,244	—173,636
Cinn., New Orleans & Tex. Pac.	April	336	809,879	42,424	905,534	95,917	157,532	23,117	230,879	38,114	549,226	60.7	356,308	293,573	260,053	103,425
	4 mos.	337	2,910,501	196,954	3,309,646	389,085	711,450	88,487	906,317	144,673	2,254,950	68.1	1,054,696	814,375	775,627	470,984
Georgia Southern & Florida	April	397	92,884	18,820	130,073	22,543	30,419	2,154	43,750	2,604	103,752	79.8	26,321	11,266	5,449	—9,554
	4 mos.	397	379,839	91,897	543,013	91,935	131,629	7,303	172,328	9,221	421,933	77.7	121,080	60,499	42,618	27,330

Continued on next left-hand page

DRAIN MULTIPLE TRACK ROADBED WITH TONCAN IRON CULVERTS...

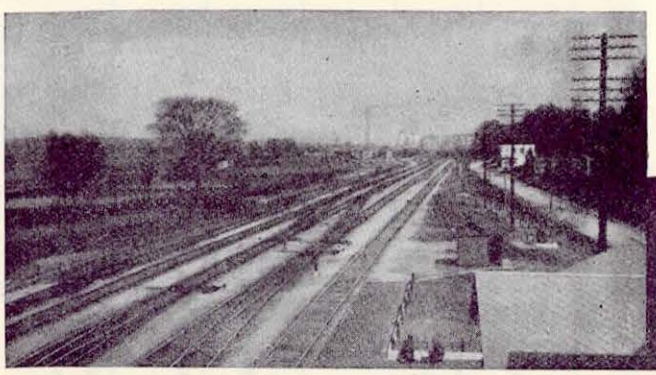

SIGNAL BRIDGE
NATURAL EARTH
MAIN - Perforated Metal Culvert
MAIN - Perforated Metal Culvert
LATERALS - OF PLAIN METAL CULVERT
NATURAL EARTH
MAIN - Perforated Metal Culvert
Excavation Line
Excavation Line
MAIN - Perforated Metal Culvert
MULTIPLE TRACK DRAINS
USING PERFORATED METAL CULVERT AND BACK-FILL OF CRUSHED STONE, GRAVEL OR FURNACE SLAG

Where three or more tracks parallel each other a broad expanse of roadbed is exposed to the collection of surface water. Small water pockets under the track, or a soft roadbed resulting from retained water, may create a difficult situation because, where there are multiple tracks, a slight shifting in grade or alignment of one of the tracks may be sufficient to throw cars outside the required clearance between passing trains, and the disturbance of several tracks may become quite dangerous.

To drain multiple tracks, mains of *perforated* Toncan Iron Culvert should be laid between the tracks and along the ditch line. Connecting outlet laterals of plain Toncan Iron Culvert should connect at intervals of about fifty feet. If no deep water pockets have formed, the innermost mains need not be very deep. But perforated laterals should be used where water pockets have formed and require draining. Backfilling may be any porous material which will intercept the water and lead it to the perforated pipe.

Toncan Iron is an alloy of refined iron, copper and molybdenum—an alloy well known to railroads because of its long life in service where other ferrous metals simply cannot stand up. Its resistance to rust is greater than that of any other ferrous metal except the stainless alloys. The results—longer life in culvert service—lower cost per year of use—more dependable drainage—lower cost of roadbed upkeep.

TONCAN CULVERT RAILWAY SALES, 510 S. MICHIGAN AVE., CHICAGO, ILL.



Write today for a copy of the Toncan Culvert Handbook.

REG. U.S. PAT. OFF.
TONCAN
COPPER MO-LYB-DEN-UM
IRON CULVERTS

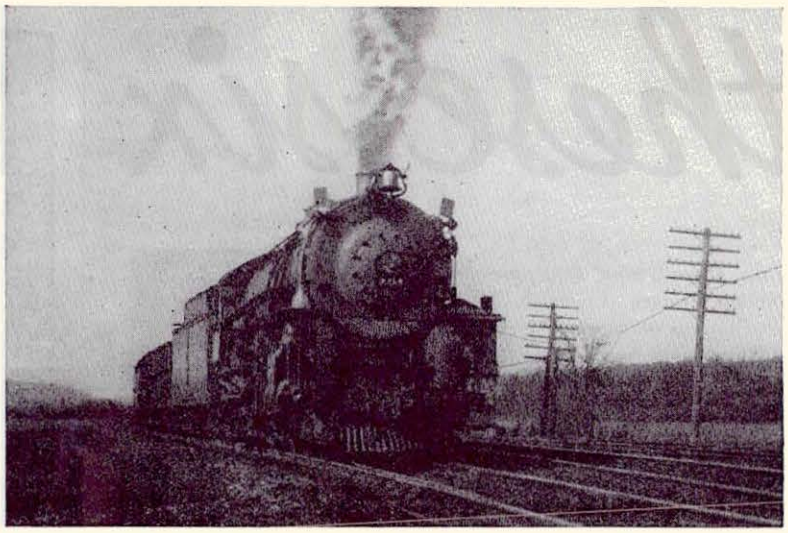
TONCAN CULVERT MANUFACTURERS' ASSOCIATION • YOUNGSTOWN, OHIO

Revenues and Expenses of Railways

MONTH OF APRIL AND FOUR MONTHS OF CALENDAR YEAR 1933—CONTINUED

Name of road		Av. mileage operated during period	Operating revenues: Freight	Passenger	Total (inc. misc.)	Operating expenses: Maintenance of Way and structures	Maintenance of Equipment	Traffic	Transportation	General	Total	Operating ratio	Net from railway operation	Operating income	Net railway operating income	Net ry. operating income, 1932
New Orleans & Northeastern	April	204	$127,006	$13,644	$152,645	$27,624	$34,536	$4,891	$58,539	$8,226	$135,011	88.4	$17,634	—$13,087	—$28,638	—$34,483
	4 mos.	204	422,194	51,422	518,145	91,354	152,467	21,043	228,903	33,607	532,408	102.8	—14,263	—137,303	—189,996	—134,174
Northern Alabama	April	99	37,022	1,004	39,534	7,182	1,326	1,267	13,164	1,857	24,794	62.7	14,740	10,236	—5,401	—3,653
	4 mos.	99	149,839	3,632	159,083	33,907	4,810	4,649	54,609	6,963	104,936	66.0	54,147	36,240	—23,253	—24,540
Southern Pacific	April	9,090	5,204,340	1,080,740	6,979,594	729,682	1,343,642	246,626	2,708,532	548,913	5,726,789	82.1	1,252,805	281,810	72,572	273,334
	4 mos.	9,098	19,022,278	4,497,287	26,124,306	3,000,923	5,372,897	1,023,916	10,878,217	2,203,058	23,055,789	88.3	3,068,517	—816,935	—1,791,433	392,286
So. Pac. Steamship Lines	April	....	268,562	10,316	293,117	14,414	101,744	16,876	220,387	20,549	373,970	127.6	—80,853	—82,183	—82,287	—83,750
	4 mos.	....	1,085,497	37,192	1,171,959	53,446	405,654	63,059	913,457	83,316	1,518,932	129.6	—346,973	—353,820	—354,320	—442,124
Texas & New Orleans	April	4,488	1,820,826	168,832	2,272,956	309,924	461,911	115,809	828,343	209,461	1,935,311	85.1	337,645	99,995	—97,672	—197,425
	4 mos.	4,545	6,879,942	716,091	8,614,653	1,364,216	1,871,962	458,807	3,340,540	865,231	7,939,744	92.2	674,909	—279,506	—1,026,099	—865,408
Spokane, Portland & Seattle	April	552	273,385	19,096	328,591	36,407	41,257	5,779	115,426	17,291	216,917	66.0	111,674	34,376	26,942	—17,774
	4 mos.	552	901,696	74,751	1,117,450	125,682	187,615	25,144	464,113	72,944	878,832	78.6	238,618	—69,640	—88,595	—27,410
Tennessee Central	April	287	130,361	3,160	141,396	28,195	20,490	4,843	51,031	10,125	114,663	81.1	26,733	24,157	7,395	6,715
	4 mos.	293	569,536	13,074	618,201	104,257	91,193	20,207	217,804	41,033	474,350	76.7	143,851	132,339	68,574	56,960
Term. R. R. Assn. of St. Louis	April	55	.....	.....	481,329	24,955	21,563	3,041	196,553	15,719	263,935	54.8	217,394	138,799	200,739	87,577
	4 mos.	55	.....	.....	1,805,700	155,980	107,297	12,755	834,991	66,960	1,187,198	65.7	618,502	277,536	526,750	422,416
Texas & Pacific	April	1,950	1,337,597	124,596	1,644,513	155,966	291,101	59,330	509,994	102,809	1,133,050	68.9	511,463	409,386	288,260	219,931
	4 mos.	1,950	4,860,575	528,998	6,100,213	652,630	1,160,427	241,405	2,034,279	420,160	4,565,320	74.8	1,534,893	1,126,087	674,400	823,794
Texas Mexican	April	162	48,999	455	54,737	10,873	13,072	2,659	27,732	6,693	60,720	110.9	—5,983	—10,537	—12,939	34,679
	4 mos.	162	186,319	2,355	207,468	37,765	49,821	11,512	99,754	26,482	223,527	107.7	—16,059	—34,462	—45,801	13,991
Toledo, Peoria & Western	April	239	123,180	21	124,999	29,327	9,838	13,081	35,329	8,761	96,336	77.1	28,663	24,772	13,783	4,543
	4 mos.	239	436,473	106	442,960	99,182	38,745	53,982	133,597	29,749	355,255	80.2	87,705	74,512	38,240	20,596
Toledo Terminal	April	28	.....	.....	53,380	4,176	7,774	464	25,051	3,820	41,284	77.3	12,096	5,485	17,308	6,738
	4 mos.	28	.....	.....	237,478	15,718	34,687	1,826	115,119	16,773	184,122	77.5	53,356	22,722	69,905	78,819
Union R. R. of Penna.	April	45	.....	.....	126,220	18,522	87,796	129	71,743	13,374	191,564	151.8	—65,344	—71,855	—58,692	—64,486
	4 mos.	45	.....	.....	466,510	87,726	342,499	488	283,274	56,321	770,308	165.1	—303,798	—329,852	—282,948	—224,367
Union Pacific	April	3,768	3,619,043	304,237	4,337,232	408,317	852,816	116,041	1,366,572	270,047	3,058,972	70.5	1,278,260	957,478	782,802	668,334
	4 mos.	3,767	12,874,982	1,211,848	15,665,671	1,080,703	3,572,995	412,458	5,446,434	1,084,559	11,792,333	75.3	3,873,338	2,591,281	2,058,185	3,090,896
Oregon Short Line	April	2,504	1,250,914	69,531	1,429,899	194,483	203,717	31,781	464,649	86,070	997,811	69.8	432,088	190,154	107,494	56,483
	4 mos.	2,504	4,706,357	321,483	5,509,041	563,587	865,008	129,375	2,004,590	355,873	4,041,552	73.4	1,467,489	504,923	185,775	540,928
Oregon-Wash. R. R. & Nav. Co.	April	2,316	811,055	56,979	990,327	197,416	142,607	48,339	407,257	87,380	886,362	89.5	103,965	—24,339	—127,886	—235,465
	4 mos.	2,316	2,762,632	242,436	3,412,232	544,311	559,065	188,181	1,636,334	343,169	3,287,397	96.3	124,835	—388,305	—776,693	—710,474
Los Angeles & Salt Lake	April	1,248	861,340	86,588	1,038,165	173,173	151,980	45,400	321,473	57,648	769,964	74.2	268,201	155,811	34,760	55,218
	4 mos.	1,249	3,432,176	350,202	4,098,351	509,335	682,135	169,252	1,387,705	232,387	3,066,569	74.8	1,031,782	582,991	92,698	357,028
St. Joseph & Grand Island	April	258	187,727	1,449	196,195	27,686	57,716	2,513	58,970	11,378	158,463	80.8	37,732	27,401	5,940	29,111
	4 mos.	258	650,862	5,770	684,204	63,610	121,818	9,144	231,657	47,892	474,321	69.3	209,883	168,640	90,385	129,628
Utah	April	111	49,303	.....	49,416	3,690	19,774	495	12,412	4,772	41,143	83.3	8,273	3,127	—8,002	—2,163
	4 mos.	111	414,954	.....	417,752	42,868	93,019	1,945	89,633	19,992	247,457	59.2	170,295	129,624	78,314	78,445
Virginian	April	608	841,281	4,112	873,869	98,840	198,095	15,847	180,356	28,194	521,010	59.6	352,859	232,859	287,492	314,340
	4 mos.	608	4,013,373	18,873	4,210,882	413,523	781,476	64,354	809,750	118,020	2,186,015	51.9	2,024,867	1,464,867	1,733,628	1,878,833
Wabash	April	2,480	2,318,329	126,522	2,621,952	337,264	465,959	124,626	1,112,191	124,636	2,170,607	82.8	451,345	282,862	—53,288	—230,566
	4 mos.	2,480	9,272,884	576,035	10,628,527	1,363,034	1,931,598	535,378	4,677,978	526,474	9,062,578	85.3	1,565,949	784,742	—554,912	—575,694
Ann Arbor	April	293	219,820	1,777	228,696	25,618	41,441	10,620	97,198	9,976	184,860	80.8	43,836	31,809	11,202	11,179
	4 mos.	293	842,406	6,675	874,674	96,509	169,457	44,614	412,759	40,399	763,835	87.3	110,839	42,151	—27,369	34,278
Western Maryland	April	891	815,696	4,948	850,783	101,408	152,731	31,060	235,284	34,843	558,785	65.7	291,998	221,998	226,991	264,708
	4 mos.	891	3,454,988	21,527	3,581,506	395,741	634,831	125,531	968,993	137,141	2,274,878	63.5	1,306,628	1,026,628	1,041,091	1,186,917
Western Pacific	April	1,210	705,175	14,129	755,802	118,028	150,608	52,452	281,796	35,243	660,916	87.4	94,886	17,041	1,545	—32,511
	4 mos.	1,210	2,422,870	46,966	2,566,238	390,157	594,633	216,970	1,179,886	141,215	2,570,346	100.2	—4,108	—318,574	—310,974	—424,168
Wheeling & Lake Erie	April	511	613,103	1,368	647,061	65,046	199,692	26,537	205,017	25,038	521,330	80.6	125,731	53,764	26,763	—99,901
	4 mos.	511	2,436,515	6,158	2,587,755	252,040	772,728	104,895	831,301	102,438	2,063,400	79.7	524,355	227,981	139,956	65,807
Wichita Falls & Southern	April	203	42,259	21	44,248	8,724	7,089	1,603	12,468	2,834	32,718	73.94	11,530	8,822	5,009	—376
	4 mos.	203	157,513	110	163,650	34,074	24,479	6,540	48,902	12,053	129,048	78.86	34,602	23,771	10,963	16,015

Super-Power



Demands Super-Wearing Parts

THE economies effected by modern power are in a large measure determined by the quality of the wearing parts in the cylinders and valves.

To keep this new, modern power in the highest state of efficiency—out on the road, pulling maximum capacity trains at high speeds with minimum fuel consumption, you need the super-service built into HUNT-SPILLER *Air Furnace* GUN IRON.

The resistance of H.S.G.I. to frictional wear and high superheat temperatures has proven to be a big factor in eliminating failures, delays and high maintenance cost, and obtaining maximum results with modern power. The more completely equipped, the greater the economies.

H S G I
Reg. U. S. Trade Mark

Cylinder Bushings
Cylinder Packing Rings
Pistons or Piston Bull Rings
Valve Bushings
Valve Packing Rings
Valve Bull Rings
Crosshead Shoes
Hub Liners
Shoes and Wedges
Floating Rod Bushings

Parts Finished For Application

Dunbar Sectional Type Packing
Duplex Sectional Type Packing for Cylinders and Valves
(Duplex Springs for Above Sectional Packing)
Cylinder Snap Rings
Valve Rings All Shapes

HUNT-SPILLER MFG. CORPORATION
J. G. Platt, Pres. & Gen. Mgr. V. W. Ellet, Vice-President.

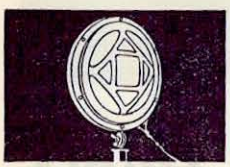
Office & Works
383 Dorchester Ave. South Boston, 27, Mass.

Canadian Representative: Joseph Robb & Co., Ltd., 997 Aqueduct St., Montreal, P. Q.
Export Agent for Latin America:
International Rwy. Supply Co., 30 Church Street, New York, N. Y.

HUNT-SPILLER *Air Furnace* GUN IRON

these six

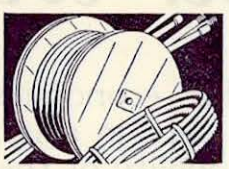
1 ***Train Dispatching Equipment*** — Among Western Electric's latest contributions to improved train dispatching are . . . New Compact Selector Key . . . Jack Box . . . Selector.

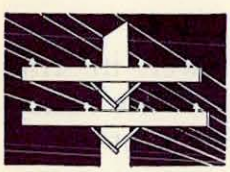


2 ***Train Dispatching Equipment*** (Continued) — Balanced Armature Type Magnetic Loud Speaker combines clear reproduction with compact size — handy mounting.

Wire and Cable — For vital circuits — dependable wire and cable. A convenient source for all kinds — including Western Electric Lead Covered Cable.

3

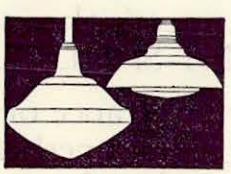


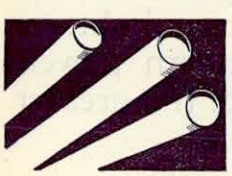


4 ***Line Construction Materials*** — From pliers to poles, construction materials of all kinds may be ordered, shipped, and assembled economically and conveniently.

Lamps and Lighting Equipment — A complete selection of quality lamps, fixtures, and glassware is readily available from Graybar. Meets exactly railroad needs.

5





6 ***Underground Material*** — Every type of conduit for railroad use — also conduit fittings, tools, transformers, accessories. No need to seek any further than the nearest Graybar warehouse.

...and 60,000 other quality electrical items for railroads

GraybaR

OFFICES IN 75 PRINCIPAL CITIES. EXECUTIVE OFFICES: GRAYBAR BLDG., N.Y.

KERITE
AN INVESTMENT
When you put your money into KERITE you make an investment in service. You do more than buy conductors, insulation and protection. You obtain the best possible combination of the most desirable qualities in permanent form. KERITE remains long after the price is forgotten.
THE KERITE INSULATED WIRE & CABLE COMPANY INC
NEW YORK CHICAGO SAN FRANCISCO

PANTASOTE

AGASOTE and STEELASOTE

In 8th Avenue Subway Cars

The 800 cars recently purchased for the 8th Avenue (New York) Subway have Agasote for the Headlining, Steelasote for Wainscoting and Pantasote for the Motorman's Curtains.

Pantasote Products have contributed to lower maintenance costs in every transportation field for more than thirty years.

Samples and prices gladly sent on request

THE PANTASOTE CO., INC.

250 Park Avenue, New York City

683 Atlantic Ave. BOSTON

1400 Conti St. HOUSTON

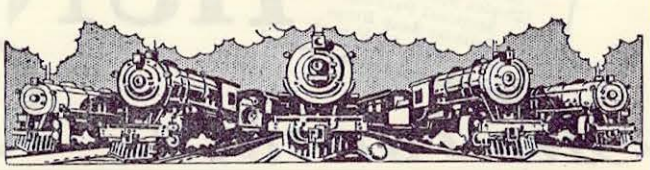
Monadnock Bldg. SAN FRANCISCO

Peoples Gas Bldg. CHICAGO

Selling Agents For

The PANTASOTE LEATHER CO.

Passaic, N. J.



MAGNUS COMPANY

(INCORPORATED)

Journal Bearings

AND

Bronze Engine Castings

New York Chicago

The I. C. C. vs. Class I Railroads of the United States

By Horatio L. Whitridge

Anyone concerned with the financial future of the railroads under private ownership and government control can obtain a balanced and well rounded view of the present situation by reading this short and penetrating analysis. The book contains a remedial program in the light of that of the Royal Commission on Transport for Great Britain. It also supports the findings of the U. S. Chamber of Commerce and most of the recommendations of the National Transportation Committee's report which will probably be the basis of remedial legislation by Congress.

174 pages, 9 x 12 inches, paper binding, $1.00

SIMMONS-BOARDMAN
FREE EXAMINATION COUPON

Simmons-Boardman Publishing Company,
30 Church Street, New York, N. Y.

Send me a copy of THE I. C. C. vs. CLASS I RAILROADS OF THE UNITED STATES. Within 10 days I will either return it or remit the list price of $1.00.

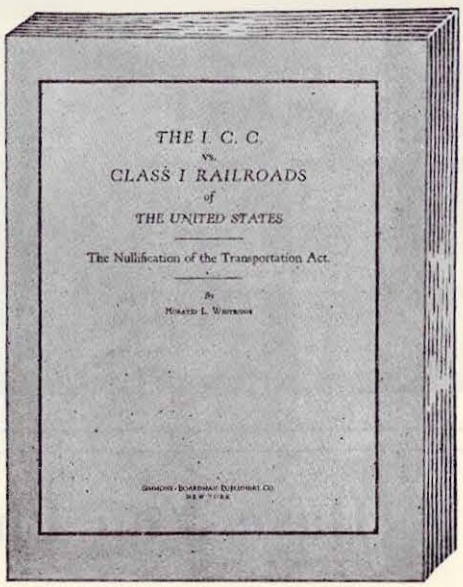
Signed .....

Address .....

City .....State.....

Company .....Position .....

(Books sent on approval to retail purchasers in the U. S. and Canada only.) R.A. 6-10-33



CONTENTS

Foreword—Transportation Chart—Petition for Rate Increase of 15%—Transportation Act of 1920—The Supreme Court and "Fair Value" and "Fair Return"—Interstate Commerce Commission Valuations—Honest, Efficient and Economical Management—Passenger Business—Less Than Current Interest on Investment—Opposition to Rate Increase—The Hoch-Smith Resolution—Wages of Railroad Labor—Railroad Rates—Inland Waterways—The Motor Truck—Coordination of Rail and Motor Transportation—Railroad Costs Under Private Ownership—Railroad Credit—Railroad Consolidation—Railroad Executives—The Cost of Government Ownership—Independent Office Appropriation Bill for 1932—How the Taxpayers' Money is Appropriated—The Interstate Commerce Commission Itself—The Taxpayer—The Shipper—Hearings in Connection with Ex Parte 103—The Commission's Decision in the 15% Case—Royal Commission on Transport—Conclusion.

ILLINOIS
TRACK MATERIALS

Manufactured and Inspected to assure Uniform Quality...

Illinois Steel Company
SUBSIDIARY OF UNITED STATES STEEL CORPORATION
208 South La Salle Street, Chicago, Ill.

SPIKES · BOLTS · ANGLE BARS · TIE PLATES

A. R. A.
STANDARD COUPLERS
Including
SWIVEL COUPLERS
With
SWIVEL BUTTS
Or
SWIVEL YOKES

Pitt Passenger Couplers

STEEL CASTINGS

McConway & Torley Corporation
Pittsburgh, Pa.

CAMEL & YOUNGSTOWN
Freight Car Door Fixtures
Corrugated Steel Freight Car Doors
CAMEL SALES COMPANY
332 South Michigan Avenue
CHICAGO, ILLINOIS

Have You Changed Your Address?

Notice of change of address of subscribers should reach the office of Railway Age, 30 Church St., New York, ten days in advance to insure delivery of the following issue to new address. In sending notification of change always include the old address as well as the new.

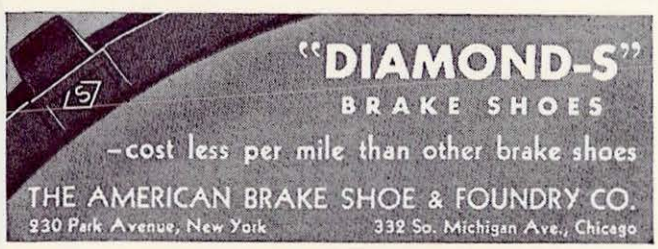
Name ..... Old Address .....

New Address .....

..... Position ..... Company .....

BARBER LATERAL - MOTION DEVICE
1,300,000 cars equipped
ROLLER SIDE-BEARINGS
STANDARD CAR TRUCK CO.
McCORMICK BUILDING CHICAGO

WINE RAILWAY APPLIANCE CO.
TOLEDO, OHIO
Details of our products appear in following issues of Railway Age during 1932
January 16—March 19—May 21—August 13—September 17—November 19—or Railway Mechanical Engineer.


"DIAMOND-S"
BRAKE SHOES
—cost less per mile than other brake shoes
THE AMERICAN BRAKE SHOE & FOUNDRY CO.
230 Park Avenue, New York
332 So. Michigan Ave., Chicago

For
Complete
Alphabetical Index
to Advertisers
see
page 24

VAPOR CAR HEATING CO., Inc.
RAILWAY EXCHANGE, CHICAGO

THE BUCKEYE STEEL CASTINGS CO.
COLUMBUS, OHIO
MANUFACTURER of Side Frames and Bolsters for 4-Wheel and 6-Wheel Freight Cars and Locomotive Tenders, A. R. A. Couplers, Yokes and Car Castings.

EDGEWATER STEEL COMPANY
PITTSBURGH, PA.
Details of our products appeared in the following issues of Railway Age during 1931, 1932 & 1933:
1931—May 16—June 13—July 4—Aug. 1, 8, 15, 22, 29—Sept. 5, 12—Oct. 3—Dec. 5.
1932—Jan. 2—March 5—April 2—May 7—June 18, 25—Sept. 3.
1933—Feb'y 4, 25—March 4—April 1.

PROFESSIONAL DIRECTORY

Your name should appear before the readers of this publication.

Your professional card should appear in this section

Robert W. Hunt Company
ENGINEERS
Inspection—Tests—Consultation
All Railway Equipment, Structures and Materials
General Office:
175 W. Jackson Boulevard
CHICAGO
Offices in all principal cities

GET TOGETHER DEPARTMENT

Non-Display "Employment" Ads five cents a word. Count address in figuring cost. Box number requires ten words. All other classified Ads $4.00 an inch (1" x 1⅝") an insertion. Payable in advance. Railway Age, 30 Church St., New York, N. Y.

Your classified advertisement should appear in this section

POSITION WANTED

BY man having twenty-six years railroad experience. Eight years as President and General Manager of short line. Will go anywhere. A-1 references. Best reasons for desiring change. Address Box 880 RAILWAY AGE, 30 Church St., New York, N. Y.

Use space in this section

POSITION OPEN

IF YOU are open to overtures for new connection, and qualified for a salary between $2,500 and $25,000, your response to this announcement is invited. The undersigned provides a thoroughly organized service of recognized standing and reputation, through which preliminaries are negotiated confidentially for positions of the calibre indicated. The procedure is individualized to each client's personal requirements; your identity covered and present position protected. Established twenty-three years. Send only name and address for details. R. W. Bixby, Inc., 102 Delward Building, Buffalo, New York.

EDUCATIONAL

THE Railway Educational Bureau, Omaha, Neb., offers a distinctive education service for Supervisors and other employes. Write for FREE Special Bulletin.

Index to Advertisers

June 10, 1933

A

American Arch Co., Inc. 15
American Brake Shoe & Foundry Co., The 23
American Hoist & Derrick Co. 21
American Locomotive Co. 17
American Steel Foundries 11
American Steel & Wire Co. 8
Armco Culvert Manufacturers' Association 3
Armco Railroad Sales Co., The 4

B

Baldwin Locomotive Works, The 10
Bixby, Inc., R. W. 23
Buckeye Steel Castings Co. 23

C

Camel Sales Company 22
Classified Advertisements 23

E

Edgewater Steel Co. 23

F

Franklin Railway Supply Co., Inc. 14

G

General Railway Signal Co. 26
Get Together Department 23
Graybar Electric Company 20

H

Harbison-Walker Refractories Co. 15
Hunt Company, Robert W. 23
Hunt-Spiller Manufacturing Corp. 19
Hutchins Car Roofing Co. 12

I

Illinois Steel Company 22
Ingot Iron Railway Products Co. 3
Inland Steel Company 2

K

Kerite Insulated Wire & Cable Co. 20

L

Lima Locomotive Works, Inc. 13

Mc

McConway & Torley Corp. 22

M

Magnus Company, Inc. 21

P

Pantasote Company, Inc., The 20
Pantasote Leather Co., The 20
Professional Directory 23

R

Railway Educational Bureau, The 23

S

Simmons-Boardman Publishing Co. 21
Standard Car Truck Co. 23
Superheater Co., The 16

T

Toncon Culvert Manufacturers' Association 18

U

Union Switch & Signal Co. 6, 7, 26

V

Vapor Car Heating Co. 23

W

Westinghouse Air Brake Co. 25
Westinghouse Electric & Manufacturing Co. 9
Wine Railway Appliance Co. 23

The NEW "AB" FREIGHT BRAKE

LOWERS INSPECTION and MAINTENANCE COSTS

RELATIVELY simple construction, durable working parts, readily accessible, with ample protection against leakage and dirt, assure dependable and consistent brake performance over long periods with minimum cost for maintenance . . . Improved Dirt Collector, combined with cut out cock, reduces brake pipe volume and eliminates pipe joints . . . Special form of Strainer protects packing rings and slide valves from fine abrasive dirt . . . Re-enforced Flanged Unions insure permanently air-tight joints and eliminate pipe failures . . . Bracket mounting of the Valve permits removal of service or emergency portion without disturbing pipe connections . . . The Brake Cylinder has a special form of WABCO packing cup that eliminates follower plate and bolts with their attendant leakage. Piston rod is equipped with packing rings to prevent entrance of dirt and moisture. A felt swab in the piston head assembly lubricates the cylinder walls. The cylinder may be relubricated from the outside without dismantling.

All mechanical improvements of the equipment combine to make practicable the *extension of time between cleaning periods* and insure greater uniformity and dependability of brake performance. . . .

This Advertisement is No. 5 of a Series.

WESTINGHOUSE AIR BRAKE CO.

General Office and Works, Wilmerding, Penna.

MAKING ONE TRACK DO THE WORK OF TWO
with
CENTRALIZED TRAFFIC CONTROL

"Postponement of Expenditure for Additional Tracks"*

"ANOTHER very definite saving made possible through centralized traffic control is the deferment of large expenditures for additional track facilities.

"On lines where the volume of traffic exceeds the economic capacity, that is, where the business is being moved over the road but delays are excessive, overtime becomes a large item of expense, many block offices are required, and delivery schedules are not met with sufficient regularity to satisfy shippers. In some cases, peak traffic movements cause congestion just at the time when prompt delivery is of most importance.

"On many such divisions, the physical conditions are such that the addition of another track would necessitate heavy expenditures, and such a program is, therefore, postponed from year to year.

"Now centralized traffic control offers a solution for such a problem at a moderate outlay.

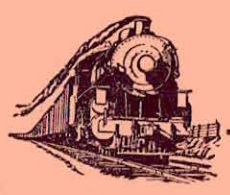
"For example, the Southern Pacific handles a peak movement of fruit and vegetables over a 40-mile section of line in California where the installation of centralized traffic control affords so much relief, in the way of improved operation and increased track capacity, that a $2,500,000 second-tracking program has been indefinitely deferred.

"Likewise, in 1925, the Missouri Pacific estimated that the revision of the alinement and second tracking of the line between Kansas City, Mo., and Osawatomie, Kan., would cost $60,000 per mile, whereas by installing a system of power switches and signaling for directing train movements by signal indication, the heavy traffic has been handled satisfactorily since that time without the second track."

*Excerpt from editorial, "Economics of Modern Signaling", Railway Signaling, May 1933, page 112.

UNION SWITCH & SIGNAL COMPANY
Swissvale, Pennsylvania

GENERAL RAILWAY SIGNAL COMPANY
Rochester, N. Y.



92

Signals Aid Modern Motive Power to Produce More Ton Miles Per Train Hour